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Nevada
and her Resources

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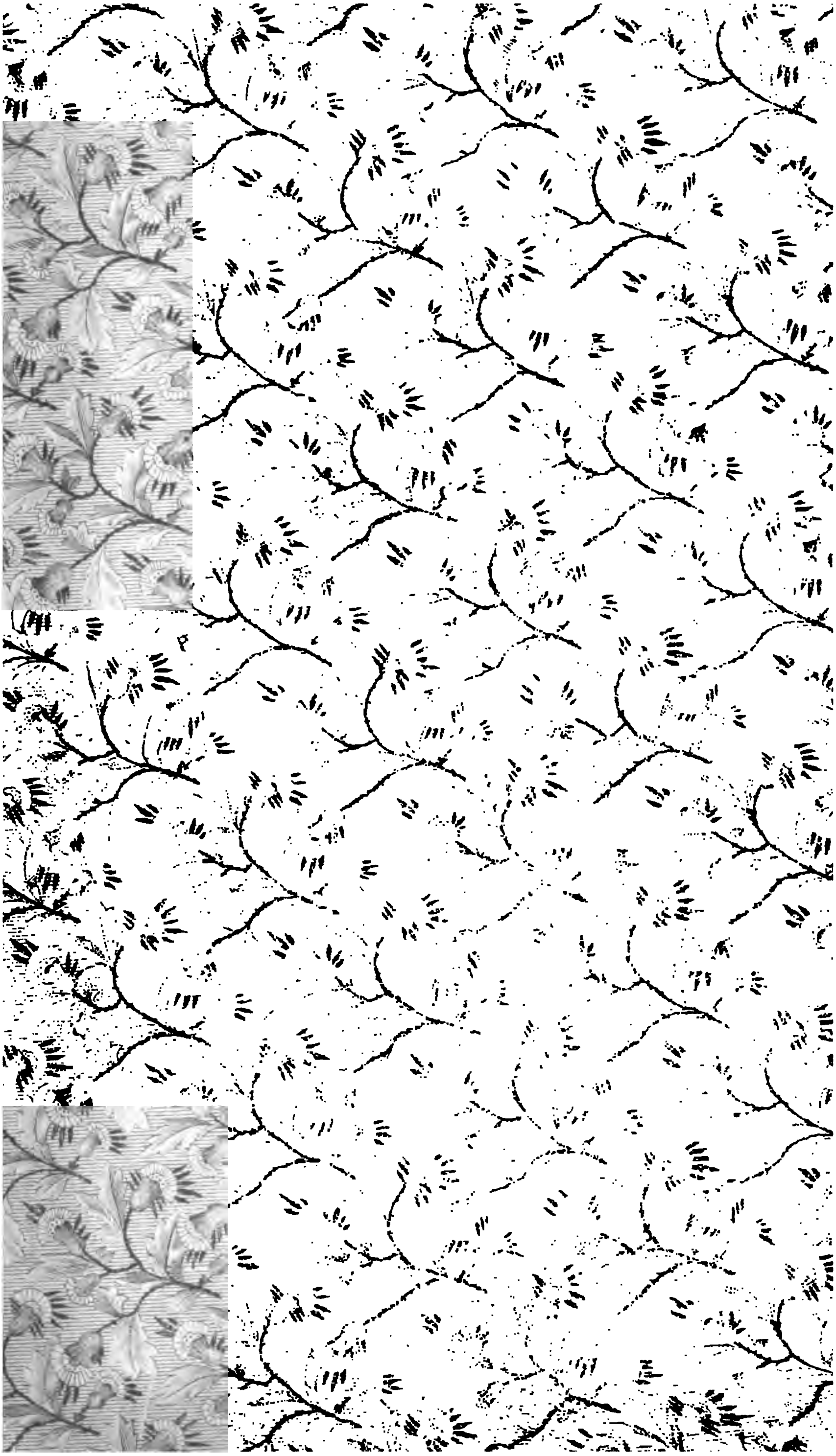
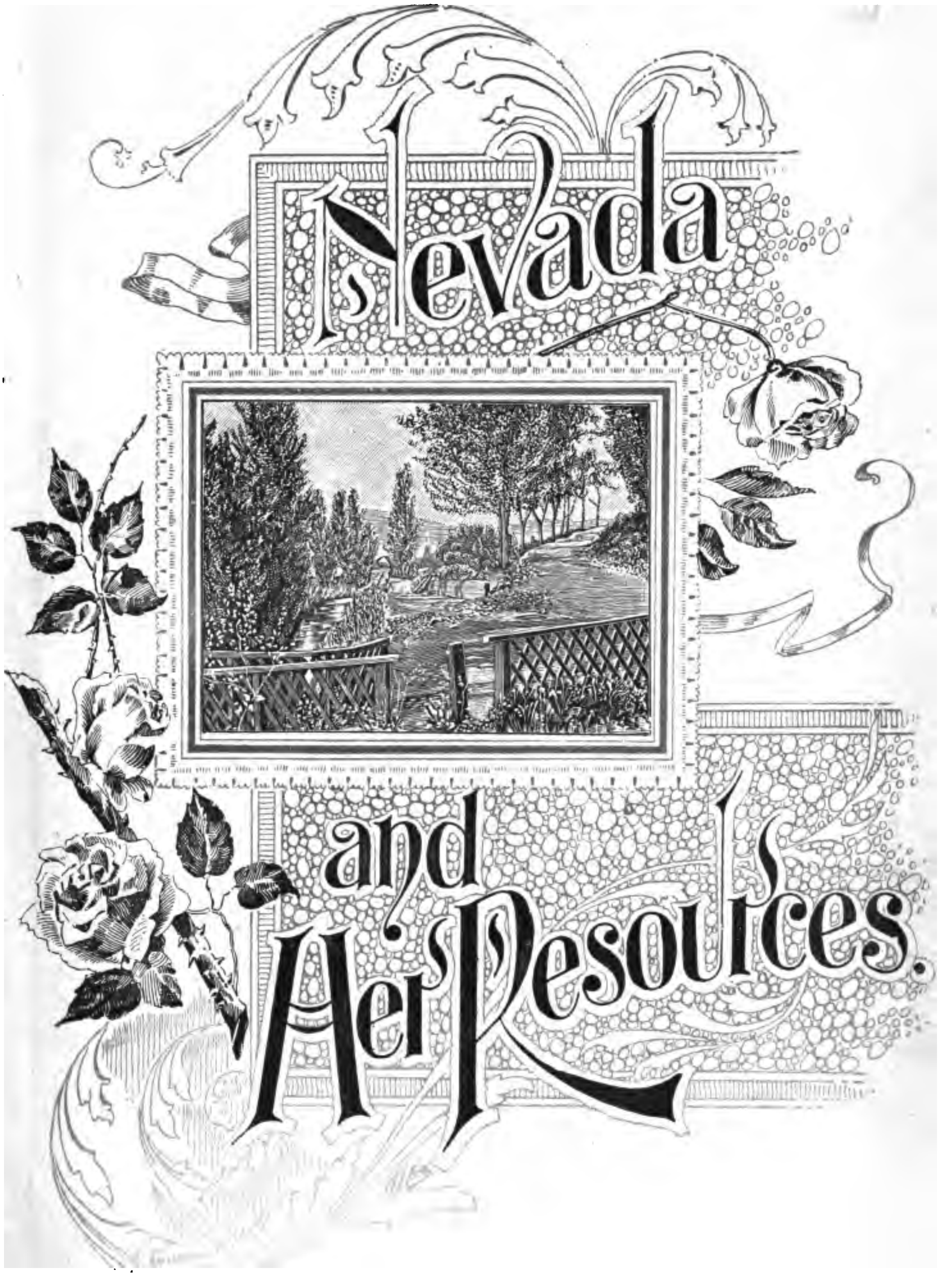
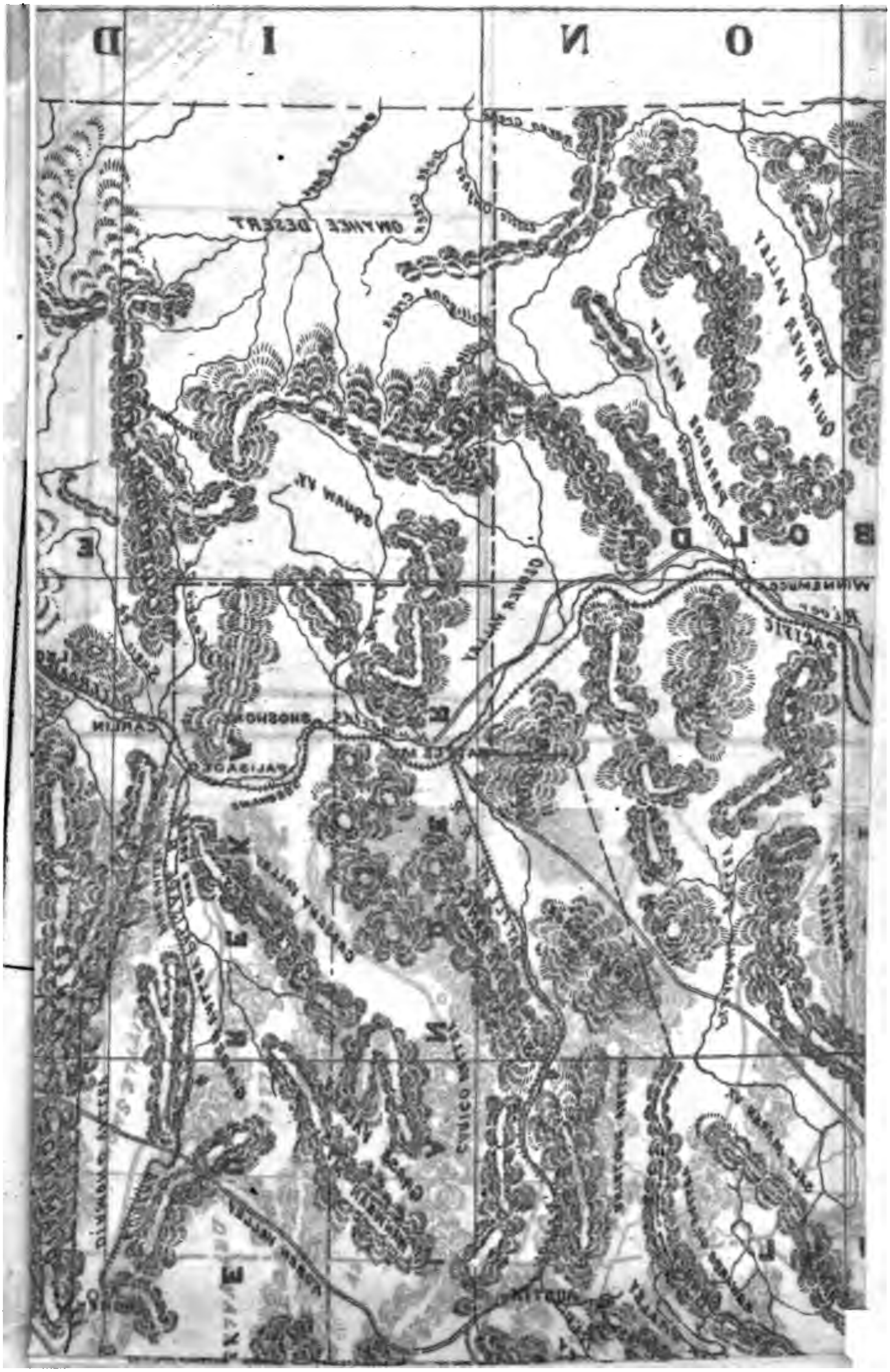
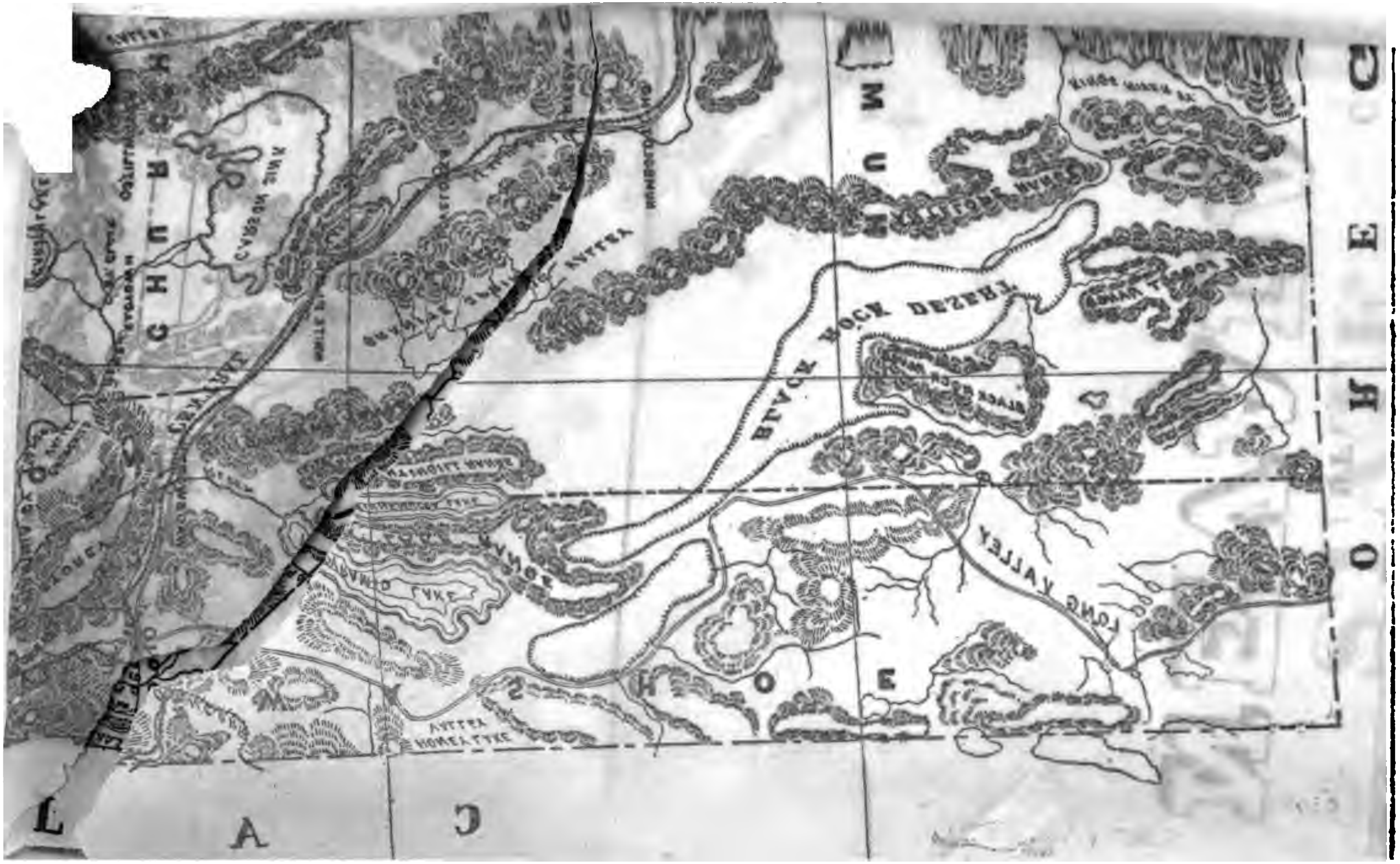


Nevada and Her Resources.







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NEVADA

AND

HER RESOURCES.

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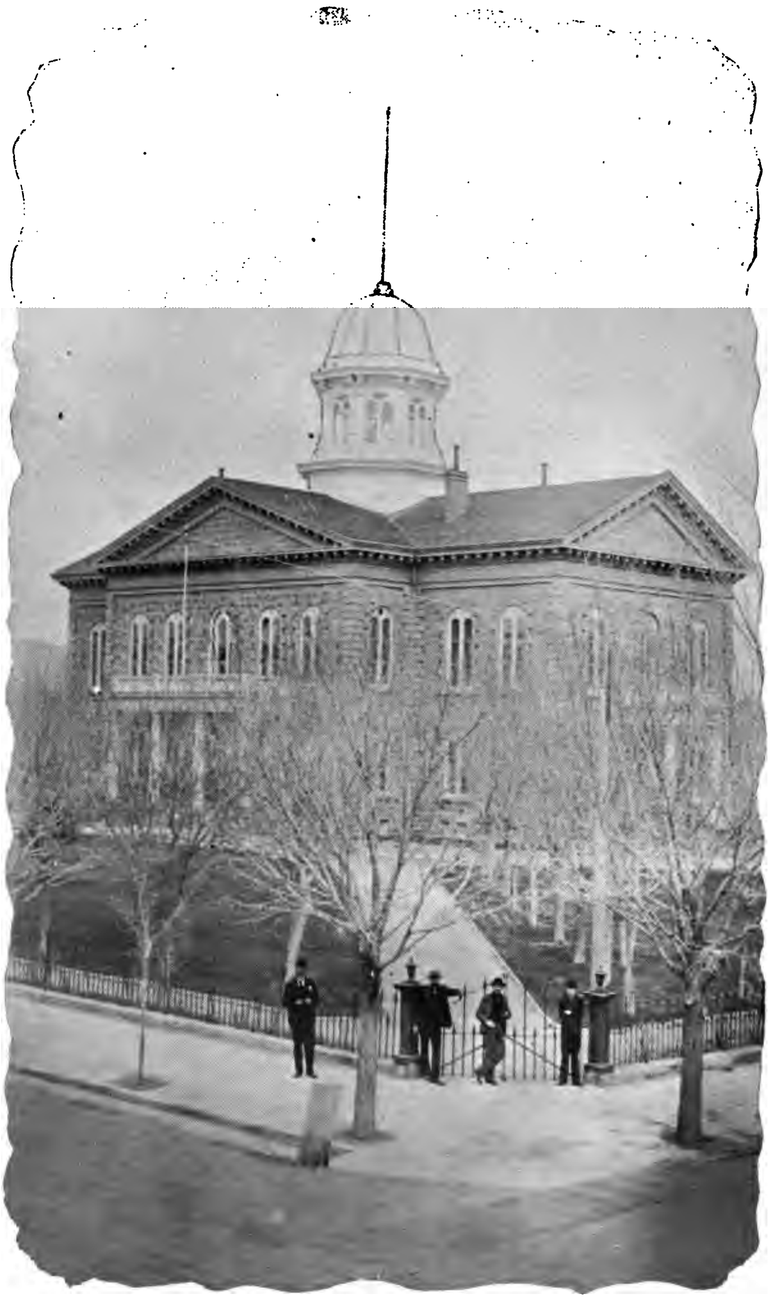
A Brief Sketch of the Advantages and Possibilities of the
State, and the Opportunities and Inducements
Offered to Capitalists and Homeseekers.

Compiled Under the Direction of the Nevada. State Bureau of
Immigration.

CARSON CITY, NEVADA.
STATE PRINTING OFFICE, : : : J. E. ECKLEY, SUPERINTENDENT.
1894.



STATE CAPITOL.

INTRODUCTORY.

NO THOUGHTFUL citizen of the Republic can look with indifference upon anything which affects the fortunes of any member of the Union. The States are bound together so strongly, and their higher and better interests so closely interwoven, that not one can suffer decline or decay without sooner or later making the change felt on all the rest. Our own State has so long been the subject of adverse comment and hateful criticism that the Scripture has been paraphrased and men instinctively ask "Can any good thing come out of Nevada?" We have submitted with fortitude to the innuendoes showered upon us, scarcely raising a voice or touching a pen to change public sentiment; but when courteously invited to join with our neighbors in entertaining the visitors from the other side of the continent and from beyond the seas, we can do no less than to make such show of our stores and such explanation of our conditions as the facts will warrant.

We think that the pages which are to follow, sustained as they will be by the exhibits placed before the public, will justify us in saying that no part of the American continent now undeveloped offers such inducements to the capitalist, the homeseeker or the invalid as does the Great Basin, extending from the summit of the Sierras to the great divide, near the Wyoming line. If Nevada were compared with her sisters to the east she would not make a bad showing, but she is in constant contrast with California, which is incomparable, and her disadvantage is overwhelming. If Missouri or Virginia were located where Nevada is, with all their richness, they would find visitors making unfavorable comparisons, and it cannot be wondered at that Nevada has but few who understand or sympathize with her.

The worst that can be said against Nevada is that she lacks population, and it must be apparent that if that is a fault it is chargeable not to those who are here but to those who fail to come.

It is remarkable that men will undergo the hardships of life in the older States when there are such opportunities in new countries. There are large tracts in Nevada devoted to pasture where crops of grain, hay or fruit could be raised and put on the cars for a fraction of the labor expended upon some of the stony land of New England or the worn out spots elsewhere. There are hundreds of thousands of men wearing their hands to the bone to raise barely enough to give their families a scanty living who, with the same energy, intelligence and capital would soon accumulate a competence in Nevada. Other hundreds of thousands living in squalor in the big cities could find plenty to do in the hundreds of valleys here if they could be broken loose from their surroundings.

J. E. JONES,
ORVIS RING,
R. L. HORTON,
State Bureau of Immigration.

THE STATE OF NEVADA.

Its History, Resources and Advantages---Opportunities Open to New Comers.

WHAT is now known as the State of Nevada was first seen by the white man in the year 1825, when an exploring party wandered over it on the way to California. From that time on hunters and trappers made frequent trips to the headwaters of the Humboldt, and many a beaver and fox fell victim to their traps and guns. Even to this day colonies of fur-bearing animals can be found on Mary's river, the South Fork and several other streams in Elko county. Fremont came soon after and left an interesting history of his two journeys, and the growing fame of far off Oregon tempted straggling bands of emigrants across the great American Desert, as it was then called, but there was hardly enough known of it to give Nevada a name until the discovery of gold in California. Then began

That Vast Romance

For which the discovery of silver in Nevada, ten years later, furnished the second chapter. Lying directly across the path, with unbeaten roads and landmarks almost entirely wanting, with hostile Indians on every side, with streams bank full one month and almost dry the next, this region became the scene of many a tragedy and its early history, if it could be written, would unravel many a mystery. Unknown graves dot the line from one end of the State to the other, showing where, sick and weary, the adventurer fell by the wayside and was buried with scant ceremony. The journey was always dangerous and exciting. Storms were frequent, the road was lost, food gave out, starvation overtook the caravan and disasters of all kinds form the materials for many a story now told by the argonauts in these happy days as they gather their grandchildren around their knees and entertain them with reminiscences of "the Winter of '49 and the Spring of '50."

The Northern Line

Of the States of Nevada and Pennsylvania both lie on parallel of latitude 42, while the southern point of Nevada touches the line of 35, which crosses Arkansas and divides Tennessee from Mississippi, Alabama and Georgia. This would read to the inhabitants of those States that we can raise the wheat, apples and potatoes of the temperate zone, with the figs, cotton, tobacco, grapes, peaches and peanuts of the South, but if it gave them the idea that the similarity of latitude gave us their climate, they would be entirely misled. The very fact that our crops require irrigation tells the story of lack of rain and fog, informing the observant reader that we have sunshine instead of clouds and cheerful days instead of gloomy landscapes. Our medium elevation, too, has an

AN AGRICULTURAL VALLEY.

RESULTS OF IRRIGATION ON NEVADA DESERTS.

immense effect on climate, it being about midway between that of Colorado and the Atlantic States, thus giving us the light air, which conduces to comfort and longevity, without the extreme cold.

The Topography

Of the country is very striking and peculiar. The Sierra Nevadas carry the western line well up their sides, while parallel to them lie high ranges with valleys between, reaching like vast furrows in a mighty field clear across the country to the Utah line. The ranges run north and south with considerable uniformity, forming a very desirable combination for any one building a railroad in that direction, but when it comes to running lines east and west, unless they strike the passes always found they are forced over ridge after ridge, some of them higher than the Sierras themselves, covered with snow many months in the year. It is a curious illustration of the different sources of wealth to see the farmers of Ruby and Lamoille valleys study the snowy summits and calculate on the season's crops. They know what they can raise to the acre, and if there is snow in plenty they may expect it to last all through the season, giving them the full benefit of their husbandry. Men who have lived for twenty-five years at the foot of a big mountain can guess closer than if they depended upon showers from the fickle clouds. These mountains have spots of highly charged quartz, bearing all the metals from gold to iron in their turn. Some of them are well covered with timber, which has come into good play when near a mining camp, as there is a great demand for lumber to fill in the place where ore is extracted and to furnish fuel for steam power, furnaces, etc. The best timber in the State is found along the California line, but much of it has been cut over and gone into the Comstock mines or been shipped away for lumber. Further east cedar and juniper cover the lower hills and nut pine the higher ones, all making excellent fencing and fuel. Mountain mahogany is an oddity in wood. It is a bush rather than a tree, and a stick six inches through and six or seven feet long is unusual, but it makes a beautiful fire and goes a long way to replace coal, as it is almost as heavy and hard as iron.

The Water System

Of the State has become an object of study since farming and irrigating have forced themselves upon people's attention. There is but a small fringe on the northern and another along the southern edge that contribute water to the sea. All the rest of Nevada lies in a basin, from which the rainfall returns in vapor to the skies from whence it came. The Humboldt river rises in the Peoquops, which divide Utah from Nevada by a natural cut-off. It drains the whole northeastern portion of the State, carrying a big stream 300 miles to a wide basin west of Lovelock, where it spreads out into a lake ten by twenty miles and evaporates. The Truckee, Carson and Walker rise in the Sierras and run east to separate lakes where they, too, evaporate. On all these streams not two per cent. of the water is used, but splendid opportunities are found for storage, and some day artificial lakes will dot the landscape, preserving the floods to make fruitful thousands of acres of land now worthless. It is very doubtful if there are three other streams in America which will furnish a greater water power than the three last named. The Truckee alone is 100 miles long and falls 2,300 feet, running for seventy miles along the main overland road, affording opportunities for factories and shops equal to any demand. Smaller streams and springs are numerous in every county in the State, while artesian water is found in many places.

The Industrial History

Begins with settlements which came with the first rush, and wherever there was a chance to supply passing trains with necessaries permanent improvements soon followed. The first attempts at farming were made in favorable localities where hay grew naturally or shallow streams offered inducements for gardening or farming on a small scale. It was soon found that lands which had always been considered worthless desert would produce in astonishing abundance and of the choicest quality. The potatoes were little packages of mealy flour instead of sour and mushy paste, as they are so often on worn out lands East. The turnips had a flavor, and the celery and cabbage are luxuries. What few fruit trees were planted have rewarded the experiment with rare and juicy peaches and apples, which paid for all the effort with one good crop. The richness of the soil is a constant surprise. The plant food has never been leached out by the heavy rains and snows of ages, as they are in countries with the normal waterfall, and the minerals from higher ground have been dissolved by time and found their way down with the crumbling deposits which have filled the valleys and prehistoric lakes. Something of this nature is constantly going on in the diversion of mountain streams for irrigating purposes, providing a reliable source of fertilization in the plant food taken up from mineral rocks and soil over which the running water passes. This is the explanation of the fact, which surprises so many, that irrigated lands never seem to wear out, but grow crops of grain or hay for a score of years with no loss of strength. But with all the inducements the temptation was greater in other lines of industry, so that there has hardly been more than what would be called sample farming—simply tests of the possibilities by widely separated workers—but the uniform success attending the efforts of every one who put seed into the ground in any corner of the State shows that all the great stretches of pasture, the immense valleys and smooth benches only need water to make them blossom as the rose.

The Many Valuable Premiums

Taken at the great world's exhibitions, from the Centennial to the Columbian, furnish convincing proof of her capacity as to quality, and the most trifling investigation will contradict the statement so often made, that there is but a very small area that is capable of reclamation. The trouble has been that no one ever considered the feasibility of building a State here as other States have been built. The question was never asked whether, if there came a time when mining failed, the raw materials would be found out of which to make a State, although the lands can be fenced, ditched and made ready for crops for much less than timbered lands in Oregon or Washington can be, or than those of Ohio and Michigan were.

Considerable attention has been paid to stock-raising, dating from quite an early day, and it may certainly be said that as good horses can be found here as in any State in the Union. More than one world-beater has been turned out from the farms of Theodore Winters, Evan Williams and others. The finest kind of beef comes in off the ranges, and our mutton is second to none. Nevada and Ohio wools are the only ones that can be said to compete with the best from Australia, and there has never been a doubt but that the farming and dairying products of the State would be equally as excellent as her other productions. The discovery of mines of fabulous richness as early as 1859, turned men's efforts into other channels before agriculture had obtained a footing.

The Comstock Lode

Has attracted the attention of all men by its remarkable production of wealth, and it built a city of 20,000 people on a mountain side where the ordinary methods of settlement would not have brought one family. Over half a billion of dollars in gold and silver have been extracted from this one fissure in the earth's crust, and the requirements of the case brought into play an immense amount of enterprise and originality. New machinery was invented and new methods applied, making of Virginia City one of the most interesting places in the world for the intelligent sightseer to visit. The sudden development of vast wealth in a country absolutely uninhabited so short a time before, upset all the calculations of the prudent and aroused the enthusiasm of the adventurous to fever heat. The early sixties was one steady contradiction of the established order of society. The discovery of gold in California, followed by that of silver in Nevada, was the most important provision for human happiness made since the days of Palestine. The production of such enormous stores of imperishable riches lifted a load from the back of our race, and there was an upward bound in all that is desirable among men. It was not like a crop of perishable commodities, for it was a permanent addition to the accumulations of industry. The demands of the miner led to important settlements on the Carson and Truckee rivers, and the building of canals and other improvements. No mean show at farming was made, and the foundation was laid for

A System of Railroads.

The Central Pacific was working slowly over the mountains from California, but when it touched the State line it went east with a rush, and connected with the Union Pacific at Promontory in May, 1869. The Virginia and Truckee was laid to Reno to connect the great mines of the century with the outside world, and later on narrow gauge roads were built in several parts of the State. The first was ninety miles long, running from Palisade to Eureka, and one from Battle Mountain to Austin was ninety-two miles. The Carson and Colorado was nearly 300, running south from the Virginia and Truckee, so all the southern country in Western Nevada and Eastern California had an outlet at Reno. Several short lines, built by private parties, connect mills and mines or timber. The Comstock discovery was followed by the Reese River excitement, which carried a stream of adventurers over to Central Nevada and built the town of Austin. It added $36,000,000 to the record, and quite an impetus was given to farming and stockraising in the neighborhood. The Eureka mines were found in 1864, and produced $125,000,000, but there is little water in that part of the State, so the settlers on the Humboldt and the Mormons along the Utah line got the benefit. In the excitement of the hour the General Government was led by political necessity to make a State of Nevada, much against the will of many of its citizens, and it entered the Union in 1864, with Hon. W. M. Stewart and Hon. James W. Nye as Senators. The territory embraced had become the property of Uncle Sam as one of the results of the Mexican war, and was part of Utah from 1850 until 1861, when an Act of Congress separated them, President Lincoln sending out the famous orator and wit, James W. Nye, for Governor, and Orion Clemens for Secretary. The latter appointed his brother Sam (Mark Twain) his assistant, and the new organization was ready for business.

The Early Days

Are full of rich traditions. The bar was one of the best in the Union, brought there by the enormous fees consequent upon disputes about ground known or supposed to be boiling over with gold and silver. Society was made up of bright men and women from all parts of the world, and money was held to be entirely a matter of course, as every one had it in plenty. The social life of the State has always been one of its chiefest charms for good people. While all were not of the highest order, yet there were very many highly educated men and cultured ladies. The bench, the press, the pulpit and the bar of Nevada have always ranked exceptionally high, while business of all kinds has been conducted upon square and capable methods.

The machinery of State was no sooner at work than steps were taken to perfect an educational system, and there is no State in the Union more completely equipped in proportion to its needs. A University grant of 90,000 acres and a school grant of *2,000,000 acres of land were made by Congress, which have been carefully handled, and the fund now in cash is over a million dollars, with good lands unsold and contracts drawing interest. But the new State failed to fulfill the hopes of its founders and its real greatness lies still in the future. There are enormous fluctuations in mining, and there has been something of a drawback to farming as a permanent industry in the very fact that the market was so rich and prices so high, while it lasted, for the time comes when any mine ceases to pay, and often it has serious ups and downs before it is worked out, and those who depend upon it and nothing else for an outlet feel the drop disastrously. If there had been a large and steady market for the farmers of the State there would have never been anything said about contesting our right to a place among the other forty-four members of the Union. Watered lands by the square mile, which are now devoted to pasture, would be well covered with smiling farms, and immense sums would have been put into works to reclaim valleys where now the brown sagebrush furnishes concealment for the rabbit and the coyote. There are over

Seventy-one Millions of Acres

Within the border lines of Nevada, and if only one acre in ten can be made productive there will be as many farms, and they will produce as much, as there are in one-half the States in the Union. The other 64,000,000 acres would be no mean wealth-producers with their mountain pasture for cattle and sheep, their mines of every

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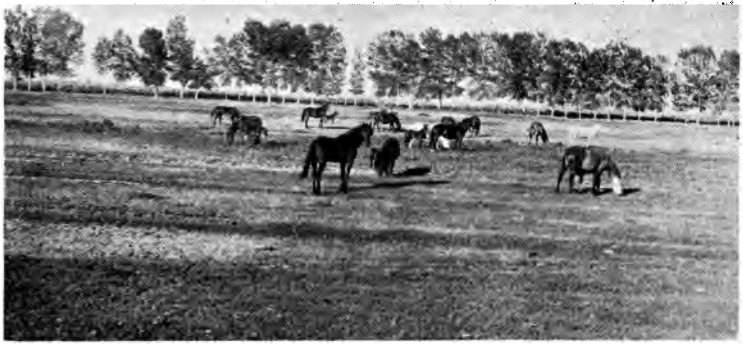
* In lieu of 16th and 36th sections.



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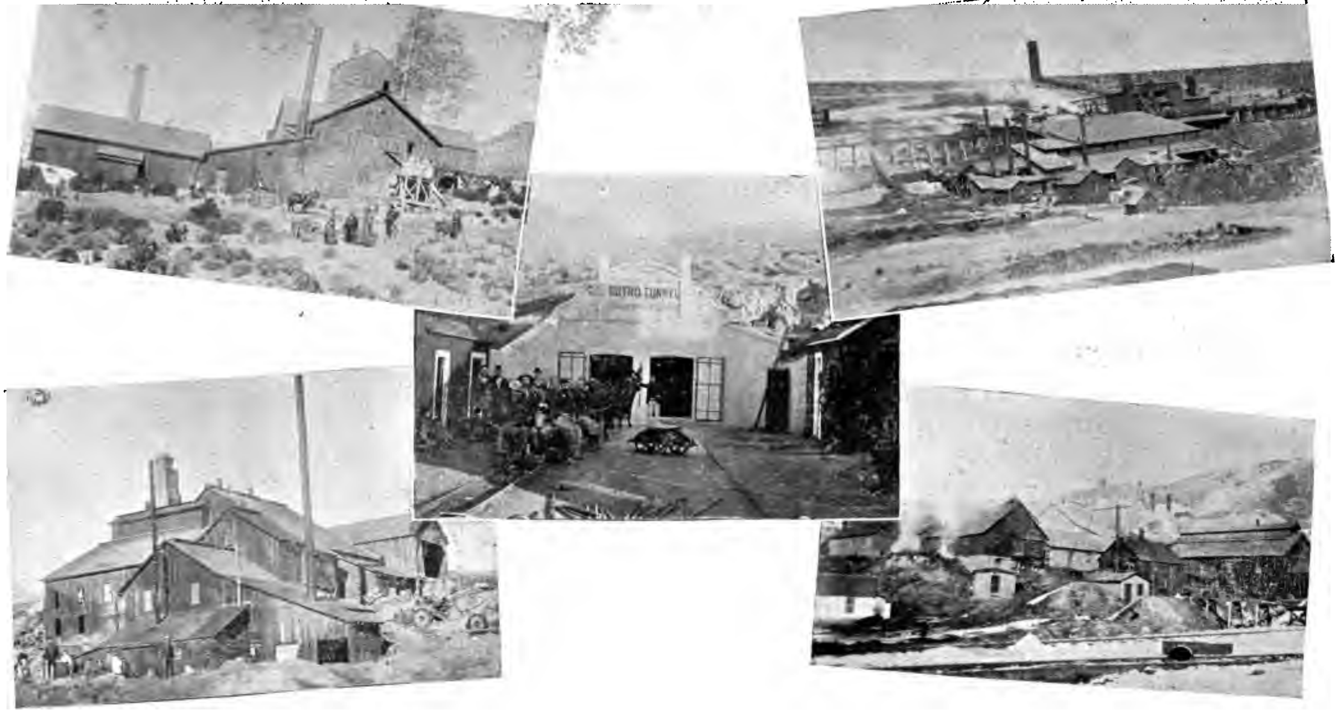


MONITOR MILL, BELMONT.
NAVAJO MILL, TUSCARORA.

SUTRO TUNNEL.

EUREKA CON. RED. WORKS, EUREKA.
MANHATTAN MILL, AUSTIN.

kind and their forests of timber. That these claims are not fanciful can be well believed by any who have looked over the ethnological discoveries of recent years, which show that there was here the seat of a vast prehistoric civilization which peopled all the country and made homes high up among the cliffs. Remains of important irrigation works have been identified, prehistoric graves have been found with samples of the productions of those early days, including cotton, corn and other cereals, near to ruins of buildings which were put up by far more skillful hands than any now at work among the aborigines Among the interesting relics of this great people are the pictured rocks which extend in broken lines from Arizona far into Oregon. They run to the summits of the Sierras, as well as far down among the valleys, and must have had some design lost in the mist of ages. None of our present Indians have even a tradition of their origin or purpose, but all agree that they were just as they are now from the earliest times known in Washoe or Piute history. A cut of one of the most distinct specimens of the hieroglyphs is given elsewhere, and learned men are giving time and thought to the subject in the hope of unraveling the mystery. But there is nothing in the whole range of prehistoric study that compares in interest with the footprints found under twenty feet of solid rock in the quarries worked by the prisoners at the State Penitentiary at Carson City. If it is ever proven that they are the tracks of human beings, which they seem to be, they upset all

The Scientific Theories

As to the age of man upon the earth; for they were made so long ago that this whole basin has since that time sunk down and been again the ocean's bed for no one knows how long, to emerge again in time to make homes for those now fretting the little stage of life allowed them. The marks of deer hoofs, dog's feet, birds long since extinct, and the bones and ivory tusks of an elephant which here lay down to die, are all jumbled in together, carrying us back to ages when there was a very different picture from any now seen here. The contrast is great between this misty past when the elephant, the cave-bear and the sabre-toothed tiger were roaming through the wilds, and this day when peace prevails and man is fast subduing the forces of nature in even this rugged land, but it is no greater nor is it any more interesting than the prophetic vision which shows the Nevada of fifty years hence. The world needs these rich stretches of highly charged alluvial deposits which nature has so cunningly prepared, and then so artfully withheld from the rush for farms which has absorbed a hundred and fifty million acres in thirty years and exhausted the public domain. There is far more pressure for land now than there was when the middle west began to settle up with the overflow from New England and New York. The States of Ohio, Kentucky, Tennessee and Michigan filled up pretty rapidly, but there was no such wild scrambles for land as are seen now-a-days when an Indian reservation is thrown open or any restriction removed. There are a hundred now for each vacant lot to one

Fifty Years Ago,

And they could not be kept away from Nevada if it was not that her wealth of agricultural possibilities lies in unaccustomed shapes, and is not clearly seen even by those upon the ground. There are statesmen in Congress and upon the farm who believe that every new comer will compete with those already raising crops. They say we have difficulty now in selling what we produce at a profit, and whoever comes in must add to the supply. They forget that every new comer adds to the consumption as well as to the supply, and in a greater ratio. It is easily demonstrated that for every man on a farm there are two men in other pursuits, and perhaps more, and that they all depend upon the farmer or the miner for their support. Population makes wealth, and there is absolutely no means to create it without, and when men say there is no room for a greater population in Nevada they ignore history, science, logic, and fact. As numbers increase the wants of the populace multiply, making possible what could not be accomplished before; towns grow and new ones are built, affording a ready sale for everything the country can raise and adding to the value of all the land within reach of their influence. There is no end to this process, except the possibilities of the country to grow useful plants, and the man who will look about him will readily see that Nevada, with her strong, rich land, her fruitful streams and healthful climate, can expand to many times her present numbers before pressing the limits. When we consider that the farmer in the extreme west not only has this market which accompanies man's endeavor everywhere, but also has the benefit of a small army of well-paid workers in the mines to cater to, there need be

No Fear for the Future

Of the irrigated belt. Two-fifths of the United States lie in the arid zone, and upon its settlement and prosperity depends the hope of the great mass of the American people. When the time comes that the poor man has no place to go to look for a home of his own, then indeed will the trying hour come, and republican institutions be tested as they never have been before. The reclamation of the arid region will put off the evil day indefinitely, and save America from being forced to crush any class of her citizens as they have been in the older countries of the world. The intelligent treatment of this great question appeals to the lover of this land, no matter in what part of it his home may be, and it is with the hope that our visitors to the Midwinter Fair may give it thoughtful consideration, and perhaps go back better equipped to do their share towards inventing a policy and providing for its enforcement, that we call attention to it. It offers a future to thousands of well educated and capable young men whose hopes for a career at home are cut off by the overcrowding of the ordinary avenues to success, but who will find here a field for their talents when once the start is made.

RESOURCES OF NEVADA.

Water Supply Available for Irrigation.

NEVADA is generally considered to embrace the most arid portion of America, and yet her water supply is far in excess of of what it is usually conceived to be. Throughout a great portion of the State the precipitation in the form of rain or snow is very light, but on the elevated plateaux of the northern part of the State it is quite sufficient, if it occurred during the season of vegetable growth, to produce many kinds of crops without the aid of artificial irrigation, while on the higher mountain ranges the snowfall is very great.

According to a report of the United States Signal Service, made in 1891, the mean precipitation for the whole State, from observations made over a series of years at forty-four stations, most of which are located in districts of minimum rainfall and none where they will record the maximum, is 10.64 inches, and this falling over an area of more than 112,000 square miles, affords no inconsiderable water supply. Besides this, we get a very large amount of water which is available for irrigation from the eastern slope of the Sierra Nevada mountains in California through the Truckee, Carson and Walker rivers, from southern Oregon through Quinn and Kings rivers, and from southwestern Utah and northwestern Arizona through the Rio Virgen, not to speak of the great Colorado of the west, which may be utilized on a considerable area of bottom lands along that stream within the State.

The above named rivers, with the Humboldt, which is entirely within the State, and the branches of the Snake river, which take their rise in Nevada, comprise the principal streams of the State. There are many other small streams and numerous springs, but these are mainly of local importance, and will be referred to in that portion of this work treating of the various counties in which they are located.

The Humboldt River.

This is by far the most important stream in Nevada, both in the volume of its water and in the area of agricultural lands that are commanded by it. The Humboldt rises in the northeastern part of the State and flows in a general southwesterly direction nearly to its western boundary, where it empties into Humboldt lake. The overflow from this lake continues on to the southward some twenty miles, emptying into what is known as the Carson sink, which is the lowest point in this portion of Nevada. Throughout the greater part of its course the river flows through a series of rich alluvial valleys—the sites of ancient lakes—in a most tortuous channel, which if followed in all its windings is over 1,000 miles in length.

Humboldt Basin.

The area of the basin it drains is about 14,531 square miles, or **9,300,000 acres, being over one-eighth of the entire area of the State,** and falling in five different counties—3,757,000 acres being in Elko county, 1,140,000 in Eureka, 1,300,000 in Lander, 300,000 in Nye and 2,803,000 in Humboldt. Of this total area one-third is good level agricultural land, ranging in elevation from 3,900 to 6,500 feet above sea level. About one-fourth of the remainder is rolling foothill lands, and the balance mountain ranges with elevations of from 5,000 to 12,000 feet. As in other portions of the State, the trend of these mountain ranges is north and south, and by them the Humboldt basin is divided into three distinct divisions or districts. The most easterly, or upper division, comprises four smaller basins within the counties of Elko and Eureka, the lower portions of which, along the course of the present river channel, were in ancient times occupied by lakes, each of which were fed by the streams coming from the north and south.

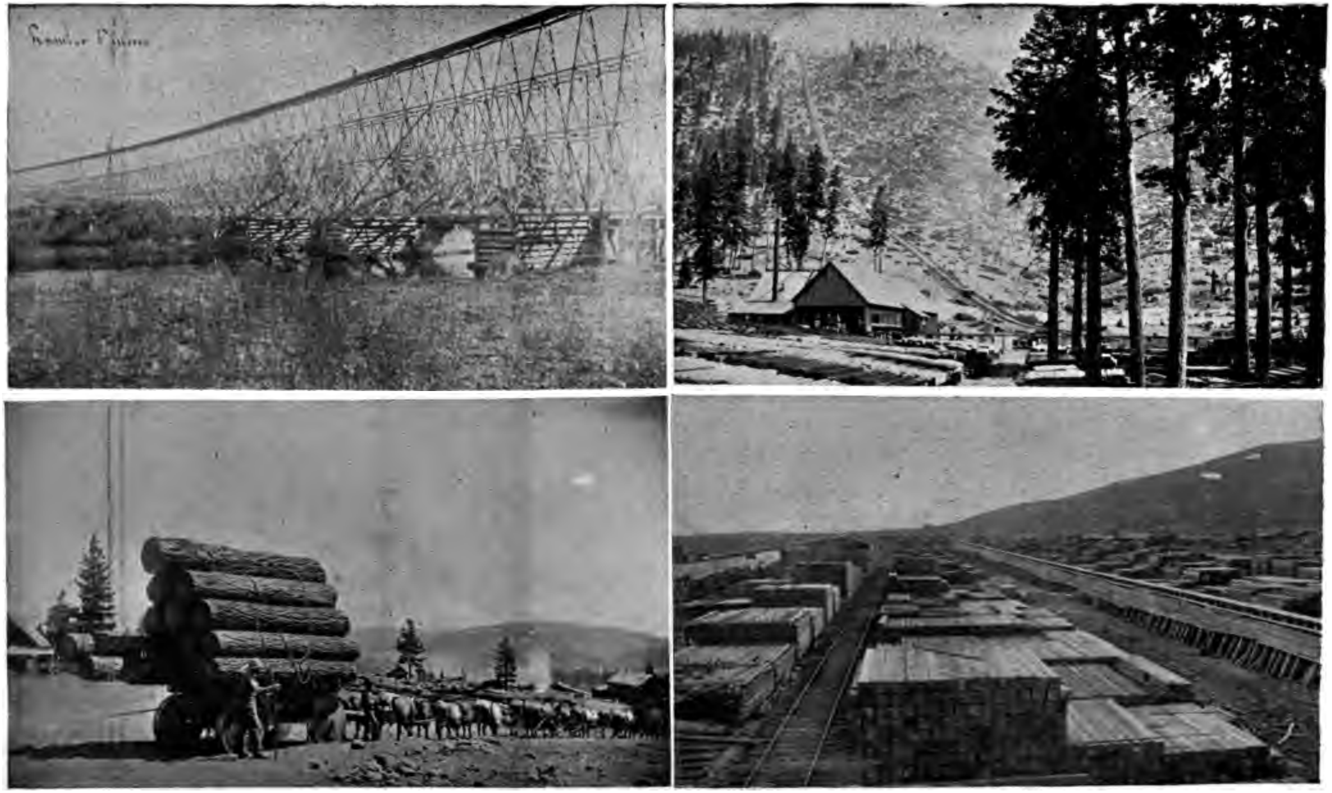
The overflow from these lakes took a westward course, with the general slope of the country, and gradually wearing away the mountain barriers drained them, leaving dry the rich alluvial valleys, now covered with sagebrush and grass. From this the waters pass through what is known as Palisade canyon, the most picturesque place on the overland route between San Francisco and Ogden, into the second or central division, which comprises a vast district embracing portions of Elko, Eureka, Lander, Nye and Humboldt counties. Within this division, in what is now known as Battle Mountain valley, was originally a lake of more than 1,000 square miles extent, which was separated from the third or lower division, then under water and constituting an arm of the ancient Lake Lahonton, by a low range of mountains, which, as the lake below receded, was cut through by the flowing waters, until now and for long ages the central lake has been entirely drained. The canyon through which the river traverses this mountain range is known as Emigrant canyon, and below it, extending 100 miles to Humboldt lake, is the third or lower division of the Humboldt basin.

Agricultural Lands.

The agricultural lands of the Humboldt basin, lying along the main river and in the valleys of its numerous tributary streams, comprise in the aggregate not less than 3,100,000 acres, 1,000,000 of which is in the upper division, 1,145,000 in the central division and 960,000 acres in the lower division.

These lands are embraced in some twenty or more valleys, which range in area respectively from a few thousand up to 600,000 acres, and while it is not claimed that all of them can be made available for farming purposes, owing to the fact that the water supply for irrigation is inadequate, it will be hereafter shown that a very large proportion of them can be, and that comparatively at a very small expense.

The transcontinental traveler on the Central Pacific railroad through the Humboldt basin sees little but a vast stretch of land covered with gray sagebrush, and presenting a picture of almost utter desolation, but in the midst of this, at Humboldt station, is a little oasis, a veritable garden spot, created by the hand of man by the application of water to the before forbidding desert. Here, surrounded on all sides by vast sagebrush plains, of which it was originally a part, is a beautiful little park, shaded by lofty elms and



GLIMPSES OF NEVADA SCENERY.

UNITED STATES GOVERNMENT INSTITUTIONS.

locusts, and overflowing with flowers and fruit, illustrating what can be done anywhere in these so-called deserts by the simple application of water and a little industry.

Soil.

The fact that the soil of these valleys is capable of enormous production under irrigation is not open to dispute. Already agriculture has passed the experimental stage in all of them, and the uniform heavy yield of the various crops attest the soil's richness in all the chemical qualities which furnish life to vegetation. During all the idle centuries of the past these lands have been enriching themselves from the soil of the surrounding mountains, borne down by streams created by the melting snows, and being in almost all cases the beds of ancient lakes, they contain deposits of alluvium of great depth. In character they vary from a gravelly loam to a close grained heavy mold, with occasionally a little adobe and clayey soil. In some spots may be found an excess of alkaline salts, but they amount to very little in the whole, and in but few places in the world can be found an equal area of agricultural land with as small a quantity of poor or worthless soil.

Climate.

The climate of the Humboldt basin is the same as in the rest of northern Nevada, dry, pure and healthy. In the Summer the average temperature for the hottest month—July—ranges from 80 degrees in the lower portion to 70 degrees in the upper, and in January, the coldest month, it is 31 degrees in the lower and 21 degrees in the upper portion. The mean temperature for the whole year and for the entire basin is 49 degrees. There are few days in the year that the sun does not shine a great portion of the time, and frequently there are many weeks at a time when no cloud is to be seen. Owing to the dry, pure atmosphere the heat of Summer is neither exhausting nor oppressive, and no matter how warm it may be in the sun it is always cool and pleasant in the shade. Fogs and high winds are almost unknown in this region, and in the winter, during the coldest weather, it is always calm.

Rain and Snowfall.

The winter is the season of rain and snowfall, the precipitation being nearly five times as great as during the summer months. In the lower valleys, and particularly around Humboldt lake, the storms are mostly in the form of rain, snow falling very rarely, and never remaining on the ground more than three or four days. On ascending the river, the ratio between rain and snow changes, most of it being snow in the high valleys and generally sufficient for four or five weeks' sleighing each winter.

The precipitation is much greater on the mountains than in the valleys and varies in a general ratio with the elevation. At the lower end of the Humboldt basin, at an altitude of 3,900 feet, the mean annual precipitation is about four inches; from 4,000 to 5,000 feet elevation it is seven inches; from 5,000 to 5,500 feet, it is nine inches; from 5,500 feet to 6,000 feet it is sixteen inches, and from 6,000 to 6,500 it is twenty-one inches. No weather stations are located above 6,500 feet, which is the highest altitude of the farming districts, so it is impossible to say what the precipitation is on the mountains, some can be developed in this basin for the proper and thorough irrigation of fully 1,600,000 acres, or a little over one-half of the good level lands of the basin.

Products of the Land.

There is nothing produced in a temperate climate at an elevation of from 4,000 to 6,000 feet that will not grow by the intelligent application of irrigation in the Humboldt basin. On the lands now farmed the yield of the various crops raised is much in excess of the average for the States further east, even in the rich Mississippi valley, and in quality the limit of excellence is reached.

Hitherto the principal crop has been hay, of which the native grasses produce from one to two tons to the acre, while alfalfa, which is cut two and three times per year, yields from four to eight tons.

The other crops raised are wheat, barley, oats, rye, potatoes, onions and all kinds of garden vegetables. Of fruits, our apples are famous for their quality, and besides pears, plums, prunes, cherries, peaches and apricots of the greatest excellence are raised. All the eastern varieties of grapes do well, and of the small fruits, currants, strawberries, blackberries and raspberries find their natural home here.

Other crops which have been experimented with and found to grow successfully in this region, especially in the lower and central divisions of the Humboldt basin, are hops, which yield abundantly, sugar beets showing the highest percentage of saccharine, also, corn, peas, beans and sweet potatoes. The average yield per acre of wheat is thirty-five bushels, barley about sixty bushels, oats about seventy-five bushels and of potatoes 300 bushels for the entire State. Up to the present time very little attention has been paid to fruit raising, and but a small area is devoted to

Diversified Farming,

For which all northern Nevada is especially adapted. This, though, is the form of industry that will grow largely during the next few years. The past year has demonstrated the fact that it is possible for all the products of human labor to go down to very low prices, but with all this there is no stopping the demand for food. So if the future settlers of Nevada plan to produce on one corner of their farms what they consume, reserving the balance for whatever form of surplus will command the best prices, they may enjoy absolute independence.

The major part of the irrigable lands in the Humboldt basin belong to the Government and to the Central Pacific Railroad Company—those belonging to the former being purchasable through the State at $1 25 per acre, while the railroad offers its lands at from $1 to $10 per acre.

The cost of putting water upon these lands will vary with the location and character of the ground, and according to whether storage is necessary or not, from $2 50 to $8 per acre, if undertaken on an extensive scale, and there are many localities where individuals can take from forty to one hundred and sixty acres upon which they can bring water at even less cost.

The present value placed upon unimproved lands under ditch in the Humboldt basin varies in different localities from $4 to $20 per acre.

SCENES IN THE HUMBOLDT VALLEY.

WHERE WATER IS STORED.

Western Rivers.

Entering the State from the west, and having their sources high up in the Sierra Nevada mountains in California, are three streams, the Truckee, the Carson and the Walker, which furnish a large portion of the visible water supply of Nevada. The northermost of these, and the one flowing the most water, is

The Truckee River.

This river takes its rise in the famous Lake Tahoe, America's grandest mountain lake, situated on the line between Nevada and California, at an altitude of 6,200 feet above sea level. After leaving the lake the river flows northward and then northeast a distance of about forty miles before entering the State of Nevada, receiving the drainage in this course from near 1,000 square miles of the high Sierras, on which the annual precipitation is near forty inches. After crossing the boundary line the river flows north a few miles, thence nearly due east, past the thriving town of Reno, through the fertile Truckee meadows, thence through a narrow, rocky canyon, a madly rushing mountain torrent, a distance of fifty miles from the State line, to the town of Wadsworth. Here it turns to the north and enters a broad valley or plain through which it flows, nearly all the way between high banks, a distance of sixteen miles, almost to Pyramid lake, where the stream divides, one branch emptying into this lake, the other flowing to the eastward, supplying the smaller Winnemucca lake with water. These lakes have a combined area of nearly 500 square miles, and have no outlets, the entire volume discharged into them by the Truckee river escaping by evaporation.

The Truckee receives several tributaries after entering the State, principal among which is Steamboat creek, entering it from the south at the eastern edge of the Truckee meadows, receiving the drainage of a large portion of the eastern and northern slopes of the Tahoe range of mountains, which form the eastern rim of the great Tahoe basin. Lying along or near the Truckee river, and separated from it by low ranges of hills, are

Many Fertile Valleys,

Some of which have already been converted into highly productive farms by the aid of the waters of the main stream and its tributaries, and all could be easily irrigated from it. In the Truckee meadows, referred to, and in Washoe and Steamboat valleys to the south, are situated nearly all the lands cultivated at present, embracing about 40,000 acres under irrigation. By far, the greatest portion of this is devoted to forage crops, principally alfalfa and native grasses, though a considerable and constantly increasing area is employed for general farming and fruit raising.

Within these valleys and others adjacent on the north, lying higher than the portion now under cultivation, are about 160,000 acres of excellent sagebrush lands generally superior in quality of soil to the lower lands near the stream, which can be reached by its waters. To the eastward, in the neighborhood of Wadsworth and northward from that town, extending to the shores of Pyramid and Winnemucca lakes, are fully 70,000 acres more that can be easily converted into productive farms by irrigation.

Besides the above, the waters of the Truckee river can, with little labor and at no great expense, be carried from a point a short distance above Wadsworth eastward into the region of the Carson sink, which will be hereafter referred to.

Water Supply and Storage.

Like all the streams of the arid region, the volume of the Truckee varies considerably from season to season, though owing to the numerous lakes at the sources of the river, which act as regulators, it is less variable than any other stream in the State. Its maximum discharge, or highest flood stage, usually occurs during the month of May, after which time it gradually diminishes, reaching the minimum about September first, or after the season of irrigation is past. However, during the latter part of the irrigating season, the stream occasionally becomes so low that it would not furnish sufficient water for the irrigation of more than 100,000 acres of land if all were used and administered with the greatest care and economy. Hence, if all the lands above mentioned are to be brought under cultivation, means must be devised to hold back the flood waters which annually flow to waste in Pyramid and Winnemucca lakes, at points above where they may be utilized as needed on these lands. As in the Humboldt basin, nature has abundantly provided for this.

Aside from Lake Tahoe, the grandest reservoir of all, there are no less than ten excellent storage sites in the natural lakes whose outlets can be dammed, and in inclosed valleys which formerly were lakes, and can be utilized at a comparatively small cost. However, by damming the outlet of Lake Tahoe alone, which has an area of 125,000 acres, and holding its waters, that now flow down the Truckee river during the spring months, to be turned loose later in the season, there would be sufficient water at all times to properly irrigate not only the lands now watered, but also the entire area above-mentioned not now under cultivation.

As has been stated, some 40,000 acres are already irrigated from the Truckee river and its tributaries and this area, though almost all devoted to the raising of forage crops, and but imperfectly farmed, affords nearly the entire support for a present population of about 6,000 souls, including the town of Reno. This being the case, what population might it not support if divided into small holdings and subjected to intense cultivation? And what an addition to the wealth and population of the State would be brought about by the irrigation and cultivation of the 230,000 acres of rich lands now lying idle within reach of the waters of the Truckee?

As on the Humboldt river, much of these lands still belong to the Government and to the Central Pacific Railroad Company, and are purchasable at a very low price. The cost of putting water upon them, including the cost of storage, would range from eight to twelve dollars per acre if undertaken on a large scale. The present valuation of unimproved lands under ditch in the Truckee basin varies, first, with the location, and second, with the character of the soil, from thirty to one hundred and fifty dollars per acre.

Climate and Crops.

The climate of the Truckee basin is similar to that of the rest of northern Nevada, and the statements concerning the climate and rainfall in the Humboldt basin are applicable generally to the valleys of this portion of the State. The crops raised here are the same as in that district, though somewhat more attention is devoted to diversified farming and to horticulture.

The Carson River.

Taking its rise to the south from the Tahoe basin, and entering the State as two separate streams, which unite a few miles eastward from the State line, is the Carson river. In the volume of its flow it is less than the Truckee, but in length and the area of agricultural lands it commands, it is second only to the Humboldt. The basin of the Carson river, like that of the Humboldt, may be divided into three distinct districts, each of which was formerly the site of a lake, whose waters have long since cut through the mountains that hemmed them in, and left dry the rich alluvial valleys constituting

The Agricultural Lands

Of to-day. In the upper district, lying in Douglas and Ormsby counties, are Carson and Eagle valleys, embracing some 90,000 acres of excellent land. Below this the river passes through a narrow canyon, a distance of about ten miles, to the second or middle district, where, in the neighborhood of Dayton, and in Churchill valley, below the old fort of that name, are about 50,000 acres within easy reach of its waters. This division or district lies entirely in Lyon county. Below it, after passing through another canyon several miles in length, the river enters the third or lower division in Churchill county, embracing some 420,000 acres of level land to the south and west from the Carson sink, not less than 280,000 acres of which is suitable for farming purposes. In the upper district nearly all of these lands have passed to private ownership, but in the middle and lower a large portion of them still belong to the railroad company and the Government.

Present Irrigation.

At present, about 58,500 acres of land are irrigated from the river and a few small tributary streams which enter it in the State. This area is divided between the different divisions as follows: Upper division about 33,000 acres, middle division 5,500 acres and lower division 20,000 acres. As on the Humboldt and Truckee rivers, the greater part of these lands are devoted to the native grasses of this region and to other forage crops, though general farming is carried on to a limited extent in each of the three divisions of the basin.

At present there is no effort at economy in the use of the waters of irrigation, as there has rarely been need for it, owing to the fact that the supply has nearly always been abundant, even at the lowest stage of the stream. However, in the latter part of the irrigating season, the water supply afforded by the river becomes so low that any material increase in the cultivated area will necessitate the

Storage of Flood Waters,

Almost all of which now flows to waste. Good sites for storage reservoirs are not so numerous on the Carson river as on the two streams already described, yet there are five large basins and numerous small ones that may be utilized. The first of these, and the largest, is Hope valley, in California, and while a good and capacious storage site, its cost will probably preclude its early construction. Below this, in Nevada, are four good basins which can be cheaply utilized, having a combined capacity sufficient to cover 150,000 acres to a depth of one foot. Besides this, the smaller basins available can be counted on to store 50,000 acre-feet more. As the usual flow of the stream, in excess of the amount required to fill these reservoirs, is ample for the irrigation of all the good lands commanded by it up to the first of June, after which time the stored water would be used to supplement the natural flow of the river, it is believed that the entire area—420,000 acres—can be properly irrigated from it alone. However, if the supply of water should prove inadequate, that of the Truckee river, in which is always a surplus, can be brought into the lower district, where are two-thirds of the agricultural lands, for an additional supply at less cost than the Hope valley reservoir could be constructed. The cost per acre of putting water upon these lands, including storage, will vary in different parts of the basin from five to ten dollars per acre. The present value placed upon unimproved lands under ditch away from the larger towns varies in different parts of the basin from eight to twenty-five dollars per acre.

The climate and products are the same as in the Truckee basin and the lower portion of the Humboldt.

Walker River.

The last and most southerly of the large streams coming into the State from California, and receiving its waters from the eastern slope of the Sierra Nevada mountains, is the Walker river. Like the Carson, it enters Nevada as two separate streams, which unite into one large river in what is known as Mason valley, in Lyon county.

Within the basin of this river, in Smith's, Mason and other smaller valleys, and in the vicinity of Walker lake, which receives its waters, are some of the richest agricultural lands of the State, comprising in all about 300,000 acres, with abundance of water for their proper irrigation. However, as on the other streams of the State, storage of flood waters must be resorted to in order to provide sufficient for the requirements of the latter part of the season, as the stream runs quite low by that time.

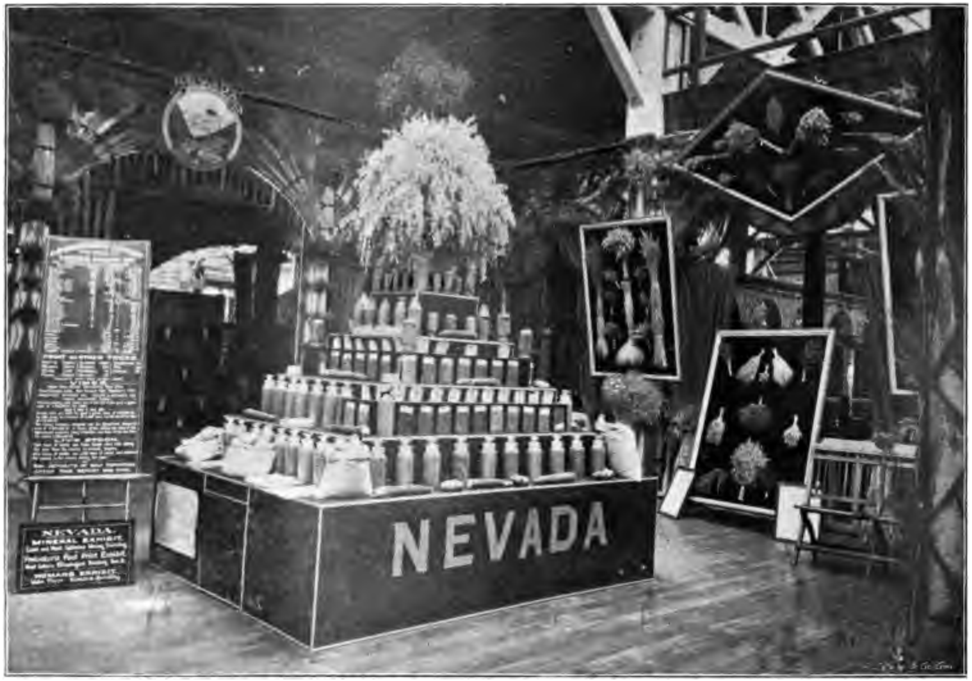
The principal valleys of the basin are Antelope, a large part of which is in California, and Smith's valley on the West Walker and Mason valley at the junction of the East and West Walker rivers. These valleys embrace the greater part of the good agricultural lands of the basin, though there is a considerable area in a number of smaller valleys on the east branch of the river and its tributaries, and in the vicinity of Walker lake.

The soil of these valleys more nearly resembles that of the lower division of the Humboldt than any other part of the State, being an alluvium of great depth deposited in the beds of the ancient lakes that existed here.

Present Irrigation.

At present probably about 40,000 acres of land are under irrigation in the basin, the greater part of this being in Mason valley, where is located fully half of the good agricultural lands that are within reach of the waters of the Walker river. As elsewhere in the State, a great part of the irrigated land is devoted to the native

DAIRYING.



AT THE COLUMBIAN EXPOSITION.

grasses, but a large acreage is in alfalfa and general farm products.

Water Storage.

As already stated, the stream runs quite low in the latter part of the irrigating season, and only by the storage of the flood waters can any considerable area in excess of what is now watered be brought under cultivation, while the present methods of using water, which, as is general in Nevada, are very wasteful, prevail. Good sites for such water storage exist at the lower ends of Antelope and Smith's valleys, on the West Walker, where the stream leaves them, passing through narrow, rocky canyons, which can be easily and cheaply dammed. On the east branch are also excellent sites for reservoirs, and also on the headwaters of both branches. By the utilization of these reservoir facilities sufficient water can be held back to supply all the available lands of the basin. The cost per acre for storing this water and distributing it over the lands will be about the same as on the Carson river. Of the agricultural lands, probably two-thirds are owned by private individuals, while the remainder still belongs to the Government. The climate and products are the same as in the lower portion of the Humboldt and the Carson basins.

Snake River Basin.

Returning to the northern portion of the State, we find several large streams which are of sufficient importance to merit a brief description. Entering the State near the northern corner, and leaving it 170 miles to the westward, is the divide that separates the great basin from the watershed of the Columbia river. To the northward of the divide in the State of Nevada is an irregular strip of territory, extending in places sixty miles southward from the northern boundary, and embracing an area of 5,228 square miles, the drainage from which finds its way into the Snake river, and thence through the Columbia to the Pacific ocean. The surface of this district is composed of several separate mountain ranges with intervening valleys, containing about 900,000 acres of agricultural land. The excess of mountains ranging in altitude from 6,000 to 11,000 feet, over valley area gives a large water supply, only part of which can be utilized in this State for irrigation. The principal streams of the district are Goose creek, Salmon and Bruneau rivers and East Fork of the Owyhee, Owyhee and Little Owyhee. The last three unite to form one large river after leaving the State.

The agricultural lands in the valleys of the first four streams can nearly all be irrigated. The main and Little Owyhee flow across what is called the Owyhee desert, which is the southern part of the large lava field that extends over a large portion of eastern Oregon and western Idaho. There are about 420,000 acres of this, which is the finest of agricultural land. At present all this belongs to the Government, and it is covered with a growth of grass and white sage.

Storage.

While the normal flow of the streams is large, it is not sufficient for the irrigation of a very large portion of this land, but by storage, for which good opportunities exist, fully half of it could be watered.

Near the head of the main Owyhee is an ancient lake bed which can be cheaply converted into a reservoir of sufficient capacity to supply 100,000 acres of land, and other large sites at different points within the basin can supply at least another 100,000. With these, and other small storage sites that exist, to supplement the regular flow of the streams during the irrigating season, fully 250,000 acres of the Owyhee desert can be reclaimed.

Quin River Basin.

To the westward from the Owyhee desert, in the county of Humboldt, is a large district, which is drained by Quin river and its main tributary, King's river, which take their rise in southern Oregon, and flow down into the old lake bed known as Black Rock desert. Within this basin, embraced in Quin and King's river valleys, are about 400,000 acres of rich agricultural lands, within easy reach of the waters of the streams. Of this area something over 50,000 acres are now under irrigation, but, as in other parts of the State, nearly all of this land is devoted to the native grasses of the country for hay and pasturage. The ordinary water supply of Quin river is sufficient for the irrigation of a much larger area of land than is now watered, and by storing the flood waters, for which, as on the other streams of the State, good opportunities exist, fully 250,000 acres in the rich valleys could be reclaimed and rendered highly productive. In elevation, climate, character of soil and productions, this basin is similar to the lower division of the Humboldt basin, and the cost of irrigation works would be about the same as in that district.

Rio Virgin.

The next large stream in Nevada, and one that is destined to play an important part in the reclamation of our desert areas, is the Rio Virgin, in the extreme southeast corner of the State. This river takes its rise in the mountains of southern Utah and flows in a southwesterly direction across a corner of Arizona into Nevada, and thence southerly through Lincoln county a distance of sixty miles, to its junction with the Colorado river. After entering the State it receives one important tributary, the Muddy river, which drains a large area of country and furnishes a considerable water supply. In character the Rio Virgin resembles more the streams of southern California and parts of Arizona than the rivers already described, having its greatest flow in winter and early spring, while in the summer and autumn it runs very low or is dry for many miles of its course. Hence, to irrigate any very considerable area of land, storage of the flood waters must be resorted to, and here, as in other portions of the State, there are ancient lake beds, now dry, which can at comparatively small cost be converted into lakes again, where the water that now runs to waste may be held on tap for use during the cropping season. Two of the larger of these storage sites alone, one on the main stream and one on the Muddy river, would hold sufficient water, if used as it is in southern California, to irrigate fully 150,000 acres of land, and the smaller points that may be utilized, for which there is water and ample for over 50,000 acres more.

Agricultural Lands.

Within the basin of the Rio Virgin, along the river and its tributaries, are some 400,000 acres of land that is suited to agriculture if supplied with water, about 40,000 acres of which is low or bottom land bordering the streams, and the balance upland or mesa. Of this area about 5,200 acres are now under irrigation, three-fifths of which is devoted to meadow grasses and two-fifths to cultivated crops. In altitude the greater portion of the agricultural lands range from 1,200 to 2,000 feet above sea level.

Climate and Products.

The climate of the Virgin basin is semi-tropic, being identical with that of southern California and Arizona, and all the products of those portions of the country thrive and mature very early. Here it is not a question of what can be raised, but what can be raised with the largest and surest profit. Being remote from the lines of travel, and having but scanty transportation facilities, this district is as yet but sparsely populated, and but a small area is under cultivation. However, a few isolated efforts scattered over it at widely separated intervals, and during the life time of a generation, have afforded ample evidence of its perfect adaptability for the production of the grains and grasses of the further north, as well as the cotton, sugar cane and fruits of the sunny south. Here a crop of wheat or barley will ripen in May, and the same ground will yield a crop of corn afterward before fall.

The patch of potatoes planted in January and harvested in May, will bear tons of melons in the mid-summer time. From the valley of the Rio Virgin came the first figs of the season, raised by D. Bonelli of Rioville, that were exhibited at the Columbian Exposition at Chicago.

With the advent of railroads which are projected, this region is destined to become a very attractive one for investors and home-seekers, for the area of unoccupied country in the United States that is possessed of such advantages is very limited.

The Colorado River.

The Colorado, though a great continental river, receiving the drainage from a large part of several States and Territories, must be considered among Nevada's streams, as it runs along the State's southeast border, in Lincoln county, for a distance of more than one hundred and fifty miles, and is navigable for steamboats as far up as the mouth of the Rio Virgin. Hence, it is destined to play an important part in the future development of this southern portion of the State by furnishing cheap means of transportation for its agricultural products, and its unbounded wealth of all the minerals known and used by the civilized world. Although the Nevada lands that are suitable for farming purposes along this river are detached and isolated bodies of bottoms and low mesas, that cannot be irrigated by means of ditches, owing to the fact that the fall of the navigable stream is too slight to allow of its waters being diverted by this means, there are in the aggregate fully 30,000 acres of the former class, laying only a few feet above its surface, and 60,000 or 70,000 of the latter, to which water can be cheaply raised by mechanical means. The superior climate and soil will cause the reclamation of these lands in the not distant future, and they will one day be in great demand.

ELKO COUNTY.

Elko county is situated in the northeastern part of Nevada, on the highest table lands in the great basin. Its length, from east to west, is 155 miles and its width 129 miles. It contains about 10,972,000 acres of land, or over one-seventh the entire area of the State. While second in the valuation of its taxable property, and containing a less population than some of the smaller counties, in natural resources it is second to none. According to the last assessor's report, it contained nearly one-third the entire amount of land under cultivation in the State, over one-fourth of all the horses and cattle and nearly one-eighth the sheep of the State. While it has never been considered a leading mining county, the net proceeds of its mines, according to the same report, were one-third the entire net yield of all the mines in the State.

The rate of taxation for county purposes is only seventy-five cents on the hundred dollars, which is lower than in almost any county in the Western States.

As will be seen by the map of this county, nearly one-half its area is covered by high mountains, ranging from 8,000 to 12,000 feet in elevation above the sea; nearly one-fourth is lower mountains, rolling hills and rough bench lands, from 6,000 to 8,000 feet in elevation, and the remainder—about 2,850,000 acres—is fine valley and bench lands from 4,000 to 6,000 feet in altitude. It is divided by an irregular watershed into three nearly equal parts. On the north is the Columbia or Snake river division, on the southeast the great Salt Lake division, and on the southwest the Humboldt division. The principal valleys in each division, with acreage of good farming land and land now under irrigation, are as follows:

Columbia or Snake River Division.

VALLEYS.	Agricultural Land—Acres.	Land Irrigated —Acres.
Goose Creek	30,000	500
Salmon River	87,000	6,500
Bruneau	50,000	1,000
Branches of Owyhee and Owyhee Desert	614,000	19,500
Total	781,000	27,500

Salt Lake Division.

Thousand Spring	275,000	5,000
Tecoma	80,000	2,000
Independence and Gosiute	456,000	500
Ruby and Clover	413,000	26,000
Total	1,224,000	33,500

Humboldt Division.

VALLEYS.	Agricultural Land—Acres.	Land Irrigated —Acres.
Humboldt	61,000	20,000
Mary's River	192,000	11,000
North Fork	106,000	7,600
Maggie Creek	42,000	1,500
Squaw Valley and Rock Creek	72,000	5,000
Star, Halleck and Lamoille	108,000	26,000
South Fork and Branches	238,500	26,300
Smaller Valleys	27,700	4,500
Total	847,200	101,900

Mountains and Minerals.

The Ruby range of mountains, which divide the Salt Lake and Humboldt divisions of the great basin, are the highest in the county. They are very steep and precipitous, with huge granite crags, bluffs hundreds of feet high jutting over narrow canyons, inaccessible peaks and mountain torrents that furnish an enormous water supply to fertilize the plains below. The other mountains are lower in elevation and their rough edges are worn off by the elements, presenting smooth, rounding outlines and covered with soil and grasses from base to summit. On some of them are forests of cedar, juniper, nut pine and mahogany. Most of the mountains are rich in minerals, though the country has never been thoroughly prospected and but few mines are developed to any great extent. One mineral belt, extending east and west, is about forty miles wide and 130 miles long in the county. For this full distance gold, in both placers and ledges, has been found in paying quantities. Silver mines have been worked continuously since first discovered. The first discoveries of mineral were made about the time it was becoming known that gold existed in other places than California, and men were led from place to place by stories of fabulous riches. Early in the sixties the first placer mines were found, and in a short time the country was swept over by a wave of prospectors. Disappointed at not finding the country as full of the yellow metal as they expected, and allured by stories of rich diggings elsewhere, most of them left the country almost as soon as they had entered it. A few ledges containing gold and silver were worked, and thus quartz mining commenced, but this was too slow a method for gold hunters. The tide of prospectors ebbed from the country, leaving unprospected claims, abandoned shafts, half constructed ditches, caving tunnels and mountains filled with minerals for those who may in the future make better use of it. Of the mining districts in the county, Tuscarora stands at the head, being one of the first discovered, and it has been worked continuously ever since. Placer mines were first found there, and are still being worked. Silver ledges were next developed, and have turned out about $10,000,000 worth of silver. On the advance of gold in value the gold ledges in the district have been opened up and are now being profitably worked.

Small beds of coal have been found in different parts of the county, but in no large quantities as yet. On the advent of the overland railroad some prospecting was done for coal, but like the prospectors for the precious metals the coal seekers were easily discouraged and soon gave up. The only search for coal now is being made near Carlin, where parties have followed a vein of coal shale into the mountain a short distance. At Elko is a large deposit of shale that burns with great heat in an ordinary stove, and is used by some for fuel. No attempts have ever been made to convert this into a gas or convenient fuel, but it undoubtedly will be done when the need for it arises. About fifteen miles south of the town of Elko, in the valley of the South Fork, is a deposit different from any that has ever been found in the world, which is attracting a great deal of attention. It is a

Mineral Soap,

And possesses cleansing qualities superior to any soap that has ever been manufactured. Where found the deposit is several feet thick, lying nearly horizontal, and its extent is unknown. As it is a part of the deposit of the old South Fork valley lake, that originally covered an area of over 30,000 acres, there is likely to be an inexhaustible quantity of it. This deposit is sure to be of great commercial importance.

Rain and Snowfall and Climate.

Owing to the fact that nearly all of the storms come from the northwest, the greatest rain and snowfall occurs in the Columbia and Humboldt divisions of the county. The higher elevation of Elko county valleys and mountains above those of other portions of the State gives it a greater precipitation of moisture. At the same time the temperature during the summer months is very near the same as in the lower valleys of the same latitude. As cold air has the faculty of seeking the lowest places along the surface of the ground, it flows over the elevated valleys and benches, where the greater part of the agricultural land lies, and settles in the lowest basins. The result of this is that while grain, vegetables and fruits of all kinds are grown on these uplands only hay and forage plants are raised in these lower valleys. The route of travel across the country being through the lower basins, nothing is seen from the railroad of the great stretches of fine farming lands and the many prosperous farms that dot the landscape over the tops of the bluffs and just out of sight. The climate has the same health-giving, invigorating properties found in other parts of the great basin.

Stock Raising.

In stock raising Elko is one of the leading counties of the State. The mountains and hills are covered with nutritious bunch grass, while on the valleys and benches grows the coarser and stronger rye grass, the seeds of which are as good for feed as grain. Beef, fattened on the bunch grass in the mountains in the summer, are brought down to the rye grass lands in the fall, where they eat the tops of the grass as eagerly and with as good result as though it were corn or oats. A couple of weeks on this food hardens the flesh so that they are shipped to San Francisco, Chicago and even New York with very little loss in weight or quality of the meat.

In the valleys and on the bench lands are found, in addition to the native grasses, a number of different kinds of forage plants, called "browse," and having peculiar characteristics, seemingly provided by nature to fit them for winter feed in this country. During the warm seasons, when stock can go into the mountains and live on the grasses there, these plants are bitter and no animal will touch them. With the coming of the first frosts and snow their leaves and stems become sweet and nutritious and remain so until the warm weather and the grasses come again. In many of the valleys it grows thickly, covering thousands of acres.

As elsewhere, the largest herds of stock are to be found away from the settlements, and as is usually the case, until a new country becomes thickly peopled, and cultivated fields take the place of grass and browse, the settlers depend in a great measure upon their flocks and herds for a living, only cultivating a tract of land large enough to supply their own wants, and raising hay and grain principally. This combined system of pastoral and farming is termed "ranching" in the Western States. Many of the larger ranchers raise only hay, buying everything they need, even to butter and eggs; and often a rancher who owns thousands of cattle, and can show his brands of fine-bred Durham, Jersey, Galloway, Hereford and Holstein cattle, never has a drop of milk for even his own family to use.

Agriculture.

As will be seen by the table giving area of the different valleys and amount of land under cultivation and irrigation in each, only a small proportion of the agricultural land has yet been utilized. This is not due to the barrenness of the soil, for in many cases the unoccupied land is better than that now under cultivation, nor to lack of water for irrigation, but to the erroneous idea that the country is a desert, which prevents people coming to it in search of homes. While it is not claimed that all the agricultural land can be put under cultivation in the future, it is certain that fully 1,400,000 acres can be farmed and water found with which to irrigate it. As it is becoming well known that irrigated lands produce two or three times as much per acre as lands in the non-irrigating portion of the country, where uncertain showers must be depended upon to raise crops, and it has been shown that there is a large quantity of unoccupied land here, the main question is the extent of

The Water Supply,

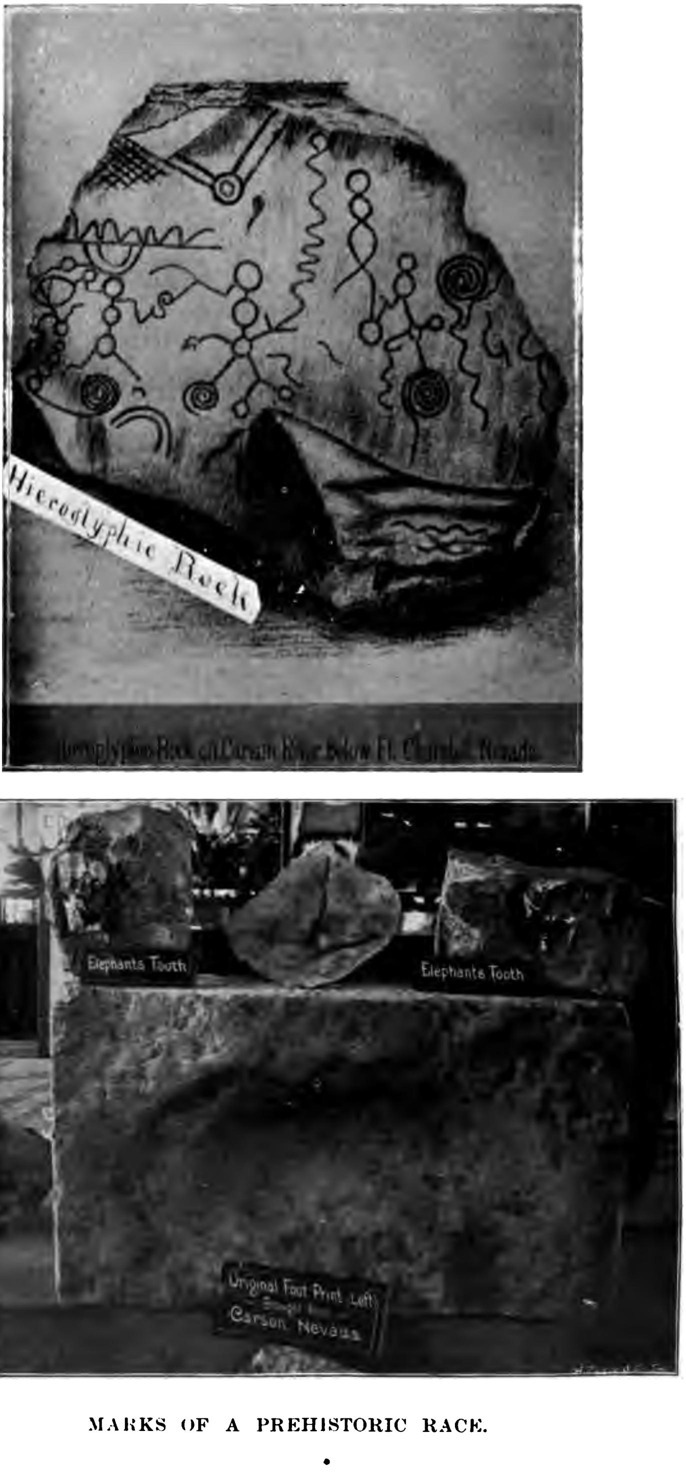
And means of increasing it or saving it for times when it is needed. This can be done in a number of ways; by the individual farmer, a group of settlers or the capitalist, as there are chances equally good for all. No attempts have ever been made to ascertain the amount of water flowing to waste in the different streams, but as all the irrigation done at present in the county does not seem to decrease the amount of water flowing out of it in the five rivers and the numerous smaller streams that have their rise here, it must be very great. Treating of the

Humboldt Basin,

First, it will be seen by the map that nearly all the waters of the Humboldt river rise in Elko county. The several main tributaries of this river, which rise in the snow-clad mountains, flow through a succession of fertile valleys that were at one time lake beds. The outlet from each valley is through a narrow canyon broken through mountain ranges, and the lower part of each one of these lake beds is a natural storage point, where can be held the waters that flow to waste eight months of the year. About half of these principal storage points are mentioned in the article on the Humboldt basin, and all of them can be seen on the map of Elko county. Many of the smaller streams also have storage basins along their courses, which can be utilized for the irrigation of a few thousand acres each. These larger reservoir points can only be rightly used by the construction of expensive dams and ditches below them. The smaller ones are available for small colonies, and can be utilized by a few thousand dollars worth of work. The large storage sites in Elko county are principally important for the storage of water to be used in other counties of the State. As the valleys here are adjacent to mountains that supply large streams, flowing all the year, the first problem to be solved is the proper use of the flowing waters. These waters can be classed as the overflow waters, or what flows off in channels above ground, and the underflow, or that which sinks, either in the mountains or a short distance out in the valleys, and does not reappear. A large part of the overflow runs past where it can be used in this county in the early spring, at the first part of the irrigating season, and if every acre of level land in the county were put under irrigation at that time of the year, it would be impossible to use all the water. Later in the season, when irrigating for the second or third crop, the overflow is much less, but then it is far more than sufficient for use on the lands now irrigated, even under the present wasteful system. It is generally thought that a miner's inch of water is needed to irrigate each acre of ground, and in many cases more than this is used. In neighboring parts of the great basin, and at the same latitude and elevation as here, where irrigation has become more of a science, it has been found that an inch of water is ample for three acres of land. On an average, by a proper management of the water used here at present, it would reclaim nearly three times the amount of land now under cultivation, without calling on the surplus overflow. Although the quantity of overflow waters is very great, this

Underflow Waters

Will play an important part in the future development of the county. These waters are flowing down from the mountains at all times, at some places on the surface a part of the way, but more often never appearing. One illustration of the underflow will give some idea of its magnitude. In Lamoille valley, there are about 9,000 acres under irrigation, the water supply coming mainly from Lamoille creek. In the only dry season ever known in the county, in October, 1889, there was water in the creek channel for a mile below where it left the mountains, but it was dry for the rest of its course. L. Gheen, who lives at the head of the valley, said that a hundred yards above where the last water sank, there was sufficient flowing to irrigate twenty acres of land; half a mile above there was sufficient for over one-third the land in the valley, and at the foot of the mountains enough above ground to irrigate every acre in the valley. Where the waters flow on the surface for some distance and then sinks, it can



MARKS OF A PREHISTORIC RACE.

FRUIT AND HONEY.

be retained on the surface by starting above where it begins to sink and conducting it in a ditch, flume or pipe across the sinking ground and upon the lands to be irrigated. It is doubtful if there is a stream in the county that does not lose at least as much water through underground channels as is at present used for irrigation, and there are many cases where large streams flowing in the mountains or short distance into the valleys before sinking, have not been utilized at all. The subterraneous channels can also be tapped by open cuts or tunnels, and the water again brought to the surface for use in many cases. In addition to the chances for increasing the irrigated area by more economical use of the present water supply and securing the underflow waters, there are innumerable chances for storage of waste waters in

Small Reservoir Sites,

Which exist along the bench lands and near the base of the mountains in every valley. These sites range from a few feet in diameter to several acres in area, and are depressions in the ground, generally a short distance from the streams. They need but very little work to convert them into reservoirs in which water can be stored during the winter and early spring months. Wm. Smiley, the wealthiest and one of the oldest settlers in Star valley, says of that valley: "There are a sufficient number of these small reservoir sites, situated in convenient places, by the utilization of which at least five times the amount of land now under irrigation could be cultivated." As there are 11,000 acres of land now under irrigation in Star valley, and only 41,000 there altogether, that would give a surplus of water to be used at other places where such storage facilities may not be as numerous. The chances here mentioned for creating a home by securing water for irrigation can be taken advantage of by any person who is willing to work. The greater part of the land is still vacant, and can be had of the United States or the State by homestead and purchase. Land can be cleared of brush and made ready for plowing for $2 50 per acre. The cost of fencing is about fifty cents a rod, or $160 a mile. The cost of securing water and bringing it upon land in Nevada, where large storage works and ditches are necessary, is generally from $5 to $12 an acre. Here such expensive works are not needed and the cost will be much less, even where cuts or tunnels would be run to tap the underflow channels. As such work can all be done by the homeseeker, his cash outlay need only be for buildings, fences and machinery, as in other places. And when it is considered that an acre will yield two or three times as much here as in the Eastern States, the extra work of constructing ditches and irrigating is more than offset by the increased yield. In the

Columbia or Snake River

Division the chances for future development in agriculture in many of the valleys are similar to those in the Humboldt division. What is known as the Owyhee desert offers the grandest opportunity for large settlements and irrigation works to be found in the county. There are a few small streams flowing upon it from the south and west, by means of which about 20,000 acres may be put under irrigation. On the east side is the Owyhee river and several large tributaries. One of the finest reservoir sites in the

State is located on Bull Run creek. A smaller one is on Deep creek and a large one at the lower end of Independence valley, on the main river. By utilizing these storage points and conducting the water upon the desert, over one-half of it can be cultivated. The soil in this large tract is the richest in the world, being of volcanic formation, the same as that in the old world, which have been under cultivation for over 5,000 years, and still shows no signs of being worn out.

The Salt Lake Division

Is somewhat different from the other two. While there are many chances for individual settlers and colonies, there is an element of uncertainty regarding the amount of land that can be cultivated. One stream, Thousand Spring creek, rises in the northern part and flows easterly, having the same characteristics of ancient lake beds, now valleys, that are to be found in the other two divisions. On the main stream is one fine large reservoir point and another below it not so good, while there are a number of small storage sites on its tributaries. Its watershed in Elko county has an area of 550,000 acres. Of this a large part is composed of rolling hills which do not receive a very heavy precipitation, and in consequence, the water supply is less than to the north and west. The remainder of the division is composed of parallel mountain ranges, trending north and south, with broad fertile valleys between. Clover and Ruby valleys on the west are well watered by numerous large streams that flow from the Ruby mountains. Two lakes in Ruby valley and one in Clover, which have no outlets, are fed by these streams. The streams are similar to those in the other divisions, losing a large part of their waters in underground channels, and there are the same chances for securing the underflow and for storage in small reservoirs.

The element of uncertainty in amount of land that can be cultivated arises from the fact that there are belts of artesian water in each valley—including Thousand Spring—none of which have yet been explored, and it is impossible to estimate the supply that may be derived from these sources.

This article would not be complete without reference to the only large combined storage and irrigating system as yet constructed entirely in Nevada. This system is located in Squaw valley, in the northwestern part of the county. The dam across the canyon at the lower end of the old lake bed is fifty feet high, 225 feet thick and 175 feet long at the base. The water floods back about one and one-half miles, covering 400 acres of land an average depth of twenty feet. The cost of the dam was $30,000. There are twelve miles of canals, carrying the water upon 5,000 acres of land, which cost $15,000. This makes the total cost of the system nine dollars an acre, which is less than the average cost of such works in other States in the arid region. The accompanying illustration shows the land before it was cleared off and haying scenes on the same land the year following.

EUREKA COUNTY.

Eureka county is situated in the central part of the State, and embraces an area of 3,384 square miles, or 2,485,760 acres, the major portion of which is covered with hills and high mountains, that are rich in minerals, besides affording pasturage for large herds of cattle, horses and sheep. The population of the county at present is about 2,500, the majority being in the town of Eureka, which is the county seat. The main occupation of the people is mining though stockraising and farming have received considerable attention in different parts of the county.

Mining.

In the fame and production of its mines in the past, the mines of Eureka rank second only to the world famous Comstock, they having produced not less than $125,000,000 of the precious metals since the discovery in 1864, and really but a small portion of the county and but a limited number of the ledges known to exist have been worked. About seventy per cent. of the product of the mines of the county has been silver, but in many of them gold predominates. Few even of the older mines have been worked to great depth, and thus far only high grade ores have been worked at all. In many localities there are thousands upon thousands of tons of ore in sight which will yield from $8 to $20 per ton, that hitherto has not been considered worth bothering with, but which will one day be worked at great profit, and will produce gold and silver to a much greater value than has already been extracted from the mines of the county. Lead, also, is largely produced here, nearly all the mines yielding a large percentage of this metal. Iron, also, is found in abundance, and in the northern part of the county, near Palisade, is an extensive deposit of magnetic iron ore. In the northern part of Diamond valley is a rich deposit of salt, which has been worked extensively in the past, while in many parts of the county excellent building stone of granite, sandstone and volcanic tufa is found.

Grazing.

Next to mining, stockraising has received more attention in Eureka county than any other industry, and like Elko county, it is an excellent grazing country. In the valleys along the streams, especially on Humboldt river and Pine creek, great quantities of nutritious grasses of many varieties grow, while the mountains and hills are covered with bunch and rye grass, than which no better stock feed exists. Besides these grasses, the white sage and many varieties of shrub and bush abound in the broad valleys and on the lower hills which afford excellent winter feed. According to the latest authentic information, there are in the county about 4,000 horses, 12,000 cattle and 20,000 sheep. The stock business has always been a most profitable one in Nevada, and in this portion of the State there is room for its expansion. However, the greatest profit in the future will not be in the large cattle ranges, but in raising on small farms or ranches a better grade of stock, and in such numbers as can be easily handled and taken care of to best advantage.

Agriculture.

As in other portions of Nevada, agriculture is impossible in Eureka county without irrigation, and aside from the Humboldt river and its one tributary in the county the water supply available for this purpose is not very large, though there are many springs and small streams scattered through the numerous valleys, some of which have been utilized to a small extent, and all of which can be, thus supplying in the aggregate a large area of land. The largest irrigated area in the county at present is along the Humboldt river, where some 16,000 acres are watered, nearly all for hay and pasturage. This land is in the main owned by cattlemen in large tracts, and the hay produced is used to fatten beef for the market.

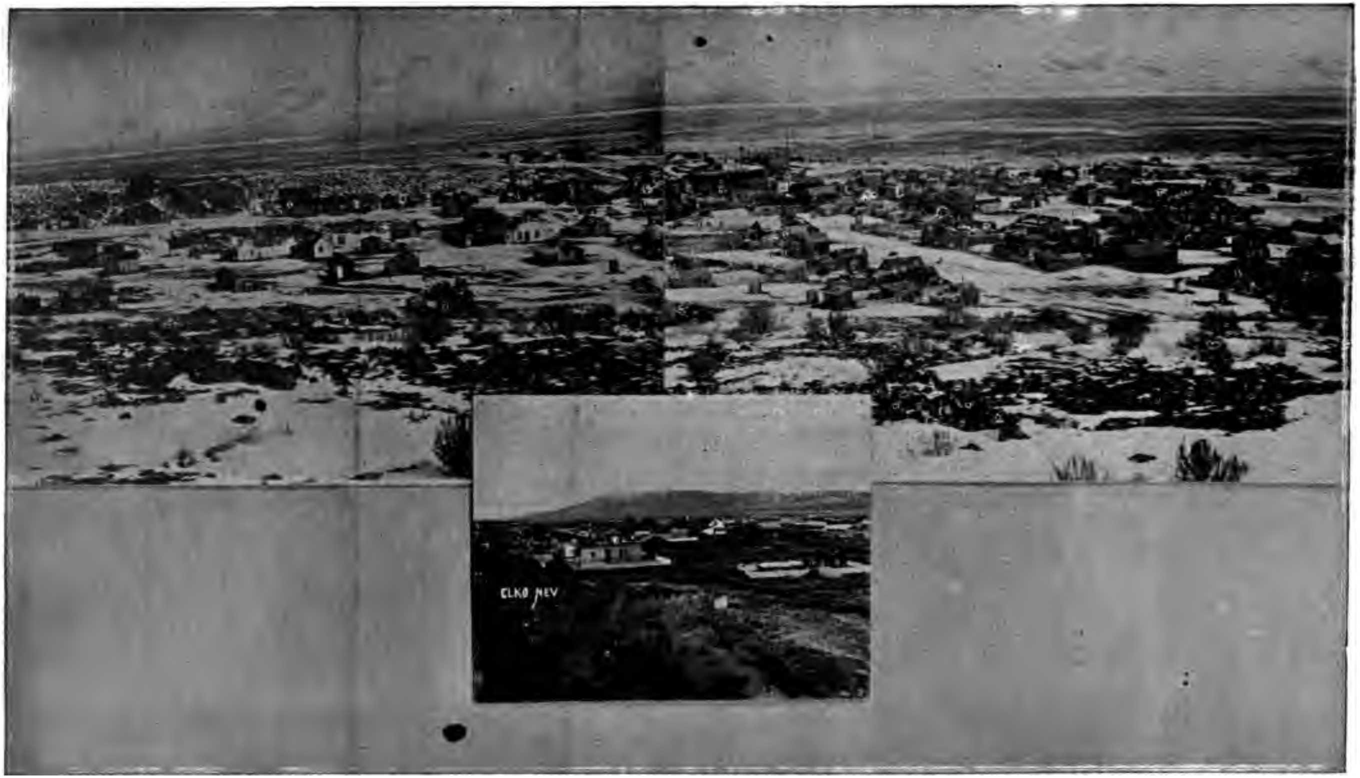
In Pine, Garden, Horse and Denay valleys—the last three arms of Pine valley—there are 160,000 acres of first-class agricultural lands, about one-third of which could be irrigated by a full and systematic utilization of the waters of upper Pine creek and its tributaries, through storage for which facilities exist. At present, not more than 5,000 acres of these lands are producing crops, and fully 4,000 of that is devoted to native grasses for hay.

This great body of land is traversed its entire length by the Eureka and Palisade railroad, which runs from Palisade on the Central Pacific, southward to Eureka, providing transportation, and rendering this a particular advantageous location. All these lands are within the Humboldt basin. Lying to the southeastward from these valleys, separated from them by a range of mountains, and immediately north of the town of Eureka, is Diamond valley, with an area of 300,000 acres of level land, two-thirds of which has an excellent soil, needing only water to render it highly productive and valuable.

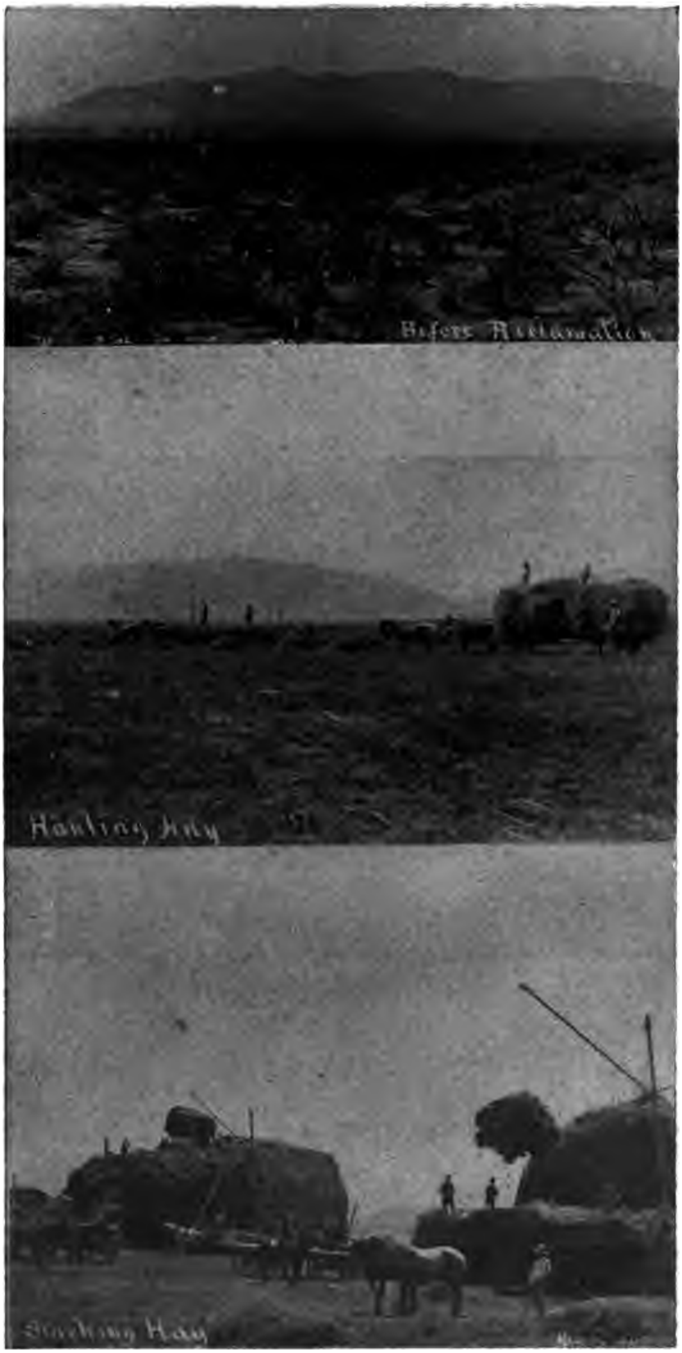
At present, there are under cultivation here, embraced in only a few farms, or more properly, ranches, and including natural hay land, not over 2,000 acres, mostly irrigated from springs, which are numerous throughout the valley, and which, with the few living streams that issue from the surrounding mountains, furnish sufficient water, if it were all used systematically and economically, to properly irrigate 10,000 acres. Besides this the "Devil's Gate," a narrow gorge situated near the south end of the valley, which is the outlet of a large basin to the southwest, affords a splendid opportunity for the storage of water, estimated at sufficient to supply 40,000 acres. The indications for obtaining artesian water in quantity are also most favorable.

Thus upwards of 50,000 acres of excellent land can easily be brought under cultivation in this valley right along the line of the Eureka and Palisade railroad, and immediately at the door of Eureka, the largest mining town of eastern Nevada.

About twenty-five miles northwest from Eureka is Roberts Creek valley, watered by a stream of the same name, which receives the drainage from the southern slope of the lofty Roberts mountain. In this valley there are under irrigation about 600 acres of land,



ELKO AND TUSCARORA, ELKO COUNTY.



BEFORE AND AFTER RECLAMATION.

using practically all the summer flow of the creek, but by reservoiring the flood waters, for which a good site exists, sufficient can be obtained for about 5,000 acres.

Fish Creek valley, situated in the extreme southeastern portion of the county, is quite well watered, mainly from springs, though a number of good living streams issue from the mountains. About 1,280 acres are irrigated here now, and there is water enough in sight, without resorting to storage, to thoroughly irrigate 10,000 acres of land, and with reservoirs, for which there are good sites, this area can be doubled.

Crescent valley extends from near Cortez, on the line between Eureka and Lander counties, northeastward about thirty miles to Beowawa, on the Humboldt river, and has a width of from six to twelve miles. It is moderately well watered by springs and living streams, and though not to exceed 800 acres are now irrigated, the ordinary water supply is sufficient for about 10,000, and by utilizing a good storage site on Indian creek, in Lander county, and other smaller points, double this area could be supplied.

Scattered through other valleys in the county are numerous small tracts of land for which water can be obtained, but the above comprise about all the larger irrigable areas. The aggregate of these small tracts, outside of the Humboldt basin, will probably not exceed 8,000 acres. However, in that basin, to the northward from the main river, are probably 15,000 acres, in Eureka county, that can be readily irrigated.

Climate, Soil and Productions.

Under this head it is only necessary to say that the climate, soil and products of Eureka county are the same as those of the upper division of the Humboldt basin, the temperatures being practically the same, though the precipitation of rain and snow is less than in Elko county.

LANDER COUNTY.

Lander county adjoins Eureka county on the west, and is similar to it in general topographic features, though its valleys are somewhat lower. As in Eureka, and in fact every county in the State, its mountain ranges are seamed with veins bearing the precious and other metals, besides being covered with grasses furnishing pasturage for stock, and nut pine, juniper and mahogany, which supply the timber for the mines and for fencing, as well as fuel for the inhabitants of the towns and valleys. The area of the county is 6,098 square miles, or 3,902,720 acres, one-third of which, including the valley of Reese river, which traverses the county from north to south, is in the central division of the Humboldt basin.

Mining.

Silver and gold were first discovered in this county in 1862, and since that time mining has been the chief occupation of its people. At Austin, the county seat, and in the various mining districts of Lander county, have been discovered in the past some of the richest mines of the State, the total yield from which, in gold and silver, to date is not less than $36,000,000. As in Eureka county, few comparatively, of the mines have been worked to any great depth, and only high grade ores have been touched as yet. In most parts of the county silver is the principal product, though in many of the mines gold predominates.

The principal mines that have been worked thus far are located at Austin, Galena, Lewis, Bullion, Pittsburgh, Kingston, Marysville, New Pass, Yankee Blade and Cortez, though good prospects have been found in every mountain range in the county, and new discoveries are being made from time to time. At Cortez, the principal mines are located in Eureka county, but the mill for working the ores is in Lander. Throughout the county are many rich gold and silver prospects which are undeveloped, owing to their owner's lacking the necessary capital, but which, when opened up, bid fair to make Lander again one of the great bullion producing counties of the State.

About twelve miles southward from Austin, in Toiyabe mountains, are the Big Creek antimony mines, which with similar ones in Humboldt and Churchill county, in this State, enjoy the distinction of being the richest mines of this metal in the world. The oldest of these mines has been in operation about four years, producing about 400 tons of metallic antimony per annum. The ledge upon which these mines are located is very large, and has been traced for about two miles.

Grazing.

Lander county is particularly well adapted to stockraising, and this industry is followed by many of the people, either independently or in connection with general farming, and as elsewhere in the State, has always proved most profitable. The number of livestock in the county, of the different kinds, is about the same as in Eureka. Quite a number of goats also are raised here, and in lower Reese river valley is probably the finest flock of Angora goats in the United States. On the same ranch is a flock of Persian big-tailed sheep, which is the only one in America. These sheep are crossed with the common breeds of sheep, producing a large animal and a fine staple wool.

Agriculture.

In the line of agriculture the citizens of Lander county have already made a good beginning, demonstrating the richness of the soil in all her valleys, and the adaptability of the climate to all the products of the temperate zone. But it is not so much of what has been done—which only demonstrates the natural richness of this portion of the State—as of the possibilities for development and the capacity of the county to sustain a large and prosperous agricultural population that it is now proposed to treat. As elsewhere in Nevada, and throughout the inter-mountain region, irrigation is a necessary adjunct to all farming operations. So the extent of the water supply that may be controlled artificially determines the area of land that may be profitably cultivated. In this county the area of good land is far greater than can be served by the available water. However, in each of the numerous valleys there is ample now flowing to waste to properly irrigate and render productive large areas of rich land. Along the Humboldt river, which crosses the northern portion of the county, and in the upper and lower valleys of the Reese river, which traverses it from south to north a distance of more than 120 miles, are upwards of half a million of acres of rich level lands, fully 200,000 acres of which can be irrigated from these streams by a proper conservation of their waters. Besides this, throughout a large portion of these valleys artesian water is to be found in abundance, as has been demonstrated by the forty wells already sunk at Battle Mountain, at the mouth of Reese river, and by other prospecting along the line of the Nevada Central railroad, which traverses Reese river valley a distance of ninety-three miles from its junction with the Central Pacific at Battle Mountain to Austin. At present this district is but sparsely populated, and not more than 25,000 acres have been watered, and this mainly to produce hay and pasturage for stock, but owing to the fact that these valleys are already penetrated by railroads and to their proximity to the large mining town of Austin and other rich mineral districts, they present the most attractive field in the county for irrigation and colonization enterprise. To the eastward from Reese river, near the line of Eureka county, is

Grass Valley,

Which is large and well watered. It contains some very fine hay and stock ranches, most of them of considerable size. At present about 4,000 acres are irrigated in this valley, but the ordinary water supply is sufficient for more than three times as much, and by storage and economical use of the waters entering it, fully 25,000 acres, mostly Government land at present, could be rendered highly productive. The nearest railroad connection with Grass Valley is at Austin, twenty-five miles to the southwest.

Smokey Valley

Is a very large valley, extending in a northeasterly and southwesterly direction a distance of fully 100 miles, with a width of from eight to thirty miles. A small portion of the northern end of the valley lies in the southern part of Lander, and though the climate is warmer than in any other part of the county, the soil fully as rich, and the water supply ample for several thousand acres of land, it is almost unoccupied, only about 500 acres being cultivated. By a full utilization of all the waters entering the valley in this county, through storage, for which good sites exist in Simpson's Park, just east of Austin, and on Kingston canyon, near the south line, fully 15,000 acres could be irrigated and converted into fine farms. Lying to the northwest from Grass Valley and to the east of Reese river is

Carico Lake Valley,

Entirely surrounded by mountains, which derives its name from the lake of about one square mile extent in its center. This valley embraces about 60,000 acres of excellent lands, only a small portion of which is occupied, but at least one-fifth of which could be utilized with the water that is available. At present, this valley is unsurveyed, and all the lands are therefore a part of the public domain.

Smith Creek Valley

Is a large valley lying to the west of Reese river, and southwest of Austin, near the line between Lander and Churchill counties. It contains about 100,000 acres of good land, but the water supply is small, and probably not over 12,000 acres can ever be cultivated, though the indications for artesian water are excellent, and from this source it is possible that a larger area may be irrigated. About 500 acres are under cultivation now. To the northward from this valley is

Antelope Valley,

Which is about the same size, and contains similar lands, but the water supply is smaller—probably not sufficient to irrigate above 5,000 acres, though it is likely that this can be increased to 7,000 by artesian wells and other subsurface supplies, as the prospects therefor are very good.

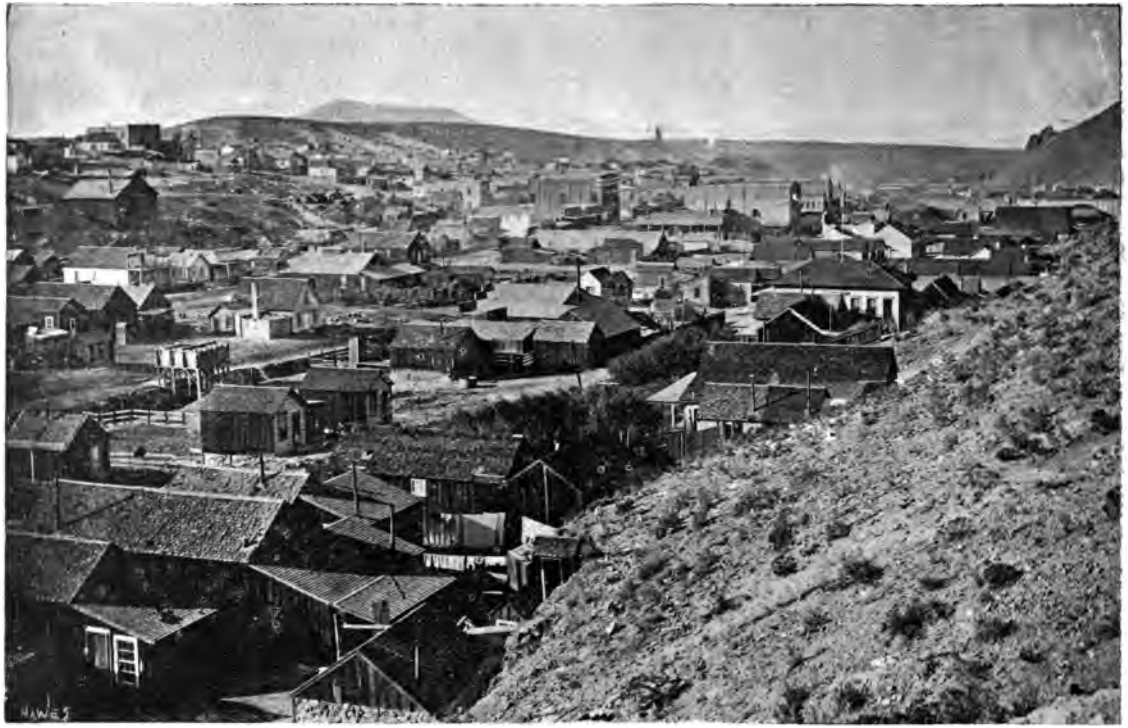
HUMBOLDT COUNTY.

Humboldt county is situated in the north central part of the State, adjoining the northern boundary line, and contains an area of 15,450 square miles, or 9,888,000 acres, being one of the four large counties of the State. Of this area, 2,803,000 acres are embraced in the lower and central divisions of the Humboldt basin, all of the former being in this county. In topography it is similar to the counties already described, but the proportion of mountain to valley lands is less.

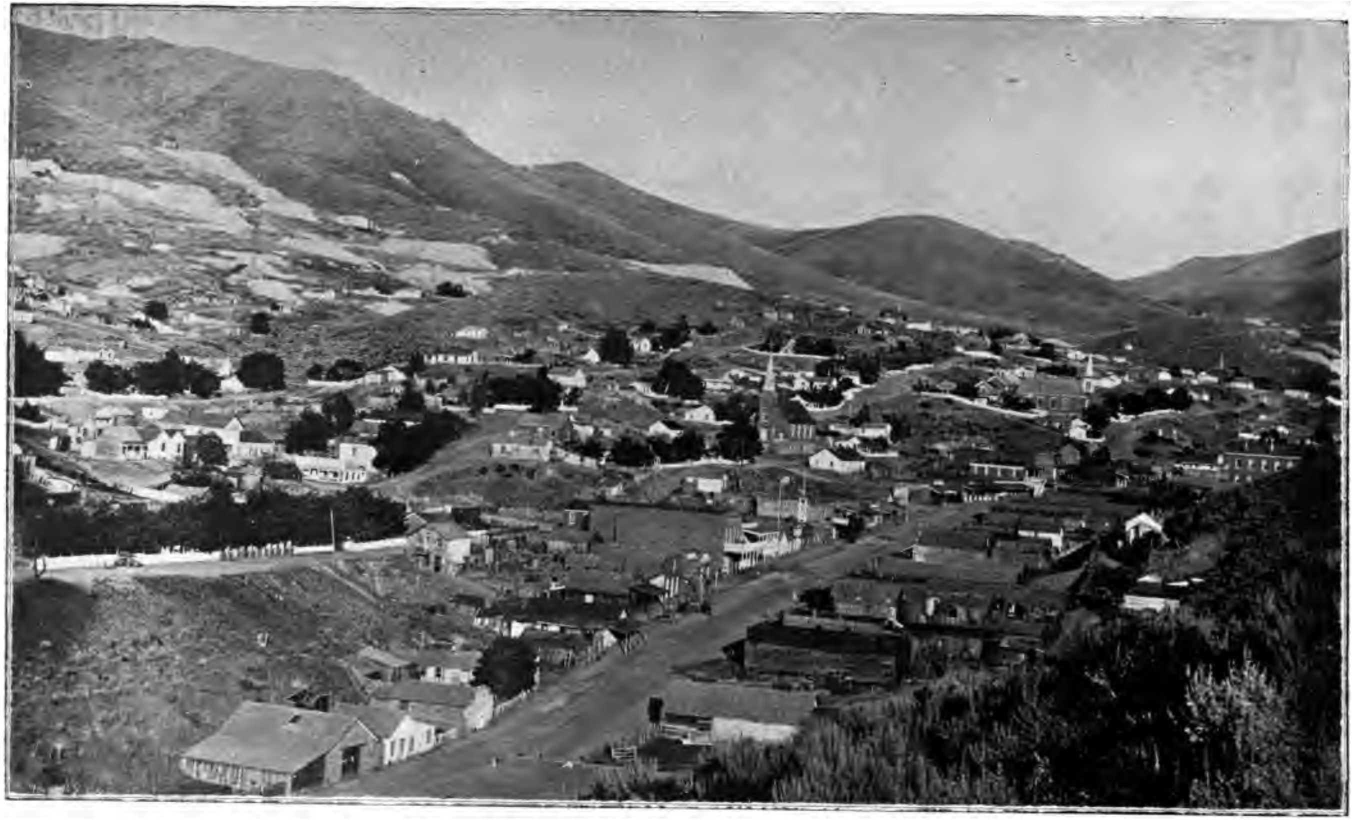
The mountain ranges in general have a northerly and southerly trend, rising to the height of from 7,000 to 10,000 feet above the sea level, while the intervening valleys, embracing the agricultural lands of the county have altitudes of from 3,900 to 5,000 feet. In general character the mountains and valleys are similar to those already described, the later being level, and containing vast areas of rich alluvial lands, while the former afford excellent pasturage for stock, and contain immense deposits of mineral wealth. On some of the mountains in the northern part of the county are forests of pine and fir, suitable for manufacture into lumber, while on nearly all are juniper, nut pine and mahogany, which furnish excellent fuel and fencing material, as well as timber for the mines.

The Mineral Resources

Of Humboldt are probably more varied than those of any similar area in the United States, if not in the world. Within its borders are found gold, silver, copper, lead, tin, antimony, nickel, cobalt, bismuth, iron, nitre, sulpher, gypsum, boxax, soda and salt. In the past, mining was carried on quite extensively in many parts of the county, but at present active operations are confined almost exclusively to the southern part, where are being worked some rich gold ledges recently discovered and several placer and gravel mines, some of which have been worked continuously for over twenty years, and from which have been taken several million dollars in coarse gold. Besides these, the mines of antimony, cobalt and nickel are being



EUREKA, EUREKA COUNTY.



AUSTIN, LANDER COUNTY.

developed, and preparations are now under way for working the nickel mines, which are very rich, on an extensive scale.

In the northern part of the county the mines thus far worked have been principally silver, though on King's river are placer mines, from which considerable gold has been taken by Chinese, and near Quin river, are some gold quartz ledges. In the neighborhood of Lovelock, near Humboldt lake, are immense deposits of an excellent quality of gypsum, which is shipped to San Francisco for manufacture into plaster of paris and land fertilizers. Near here, also, are mountains of fine Bessemer iron ore, which yields eighty-six per cent. of iron, with twelve per cent. of aluminium, and no trace of impurities. Large shipments of this ore have been made to San Francisco to the Pacific rolling mills. It is in this same locality that the nickel, antimony and cobalt mines exist. Limestone of good quality for building and other purposes, as well as granite and other building stone, is abundant in this and other parts of the county. But it is not in minerals alone that Humboldt county is rich. In the extent of her grazing resources and her agricultural possibilities she is surpassed by no county in the State, if by one in any of the arid States.

Stock Raising

Has been carried on extensively ever since the first settlement of the county, and the number of livestock of all kinds is now very great. The sheep and wool industry has received particular attention, and Humboldt now contains more sheep than any county in Nevada. In the number of cattle and horses it ranks next to Elko. But rich as it is in mineral and grazing resources, it is as

An Agricultural County

That Humboldt is destined to be great. Having a splendid and mild climate adapted to the production of all the grains, fruits and vegetables of the temperate zone, a vast area of level land with a soil of inexhaustible fertility, an extensive water supply, and being traversed for 142 miles by a trans-continental railroad, it is destined in the not distant future to be the seat of a large population and of great wealth. Already farming has made considerable progress in the county, and in many of the valleys extensive areas have been reclaimed by irrigation from their original desert state, and are now producing large quantities of the finest alfalfa and grass hay, upon which thousands of beef cattle are fattened every winter, immense crops of cereals, besides considerable quantities of fruits of various kinds, potatoes, onions, hops, small fruits and garden vegetables, all of the highest excellence. In the valley of the Humboldt river, in the central and lower divisions, in the county, are about 900,000 acres of level agricultural lands with soil of unsurpassed richness, fully 500,000 acres of which will one day be put under irrigation and cultivation by the waters of that stream through a judicious system of storage and distribution. These lands lie right along the line of the Central Pacific railroad, and belong in the main to that company and the Government.

Already some 63,000 acres of them are under irrigation, but less than 15,000 are devoted to general farm crops, and of this fully 6,000 acres is alfalfa, the balance being watered to produce natural grass hay and pasturage for stock. The yield on the cultivated lands here is something phenomenal. In 1892 W. C. Pitt, of Lovelock, harvested from twenty-two acres of land sixty-five bushels of wheat to the acre, and his average from a field of 700 acres was over fifty-one bushels. The average yield of wheat for the entire valley is very near to forty bushels, of barley over sixty bushels, and of potatoes fully three hundred bushels to the acre.

Paradise Valley,

Which is an arm of the main Humboldt, and the upper Little Humboldt, contain an area of about 350,000 acres of good level agricultural land, with a water supply, if fully and systematically utilized, sufficient for 300,000 acres. Already in this district about 100,000 acres have been brought under irrigation by the ordinary flow of the streams, without any attempt at storing the enormous amount of flood water, for which excellent sites exist, as stated in the article on the Humboldt basin. In Paradise valley are some of the oldest farms and ranches in the county, having been settled in the sixties. The valley is about forty miles long, extending north from the Humboldt river, near Winnemucca, the county seat, and from eight to fifteen miles wide. Its water supply is derived mainly from the Little Humboldt river and Martin's creek, which take their rise in the high mountains to the north and northeast, and from smaller streams that flow down into the valley. Of the 100,000 acres of land under irrigation in the valley, 85,000 are devoted to the production of wild grasses for hay and pasturage, and the remaining 15,000 acres to alfalfa, grain and other cultivated crops, including many varieties of fruits.

There are two flouring mills in the valley, both run by water power, which are in constant operation, turning out an excellent quality of flour, all of which is consumed in Humboldt and neighboring counties. Fully half of the irrigable lands of the valley still belong to the Government and the Central Pacific railroad, and are subject to entry under the homestead and desert land acts or can be purchased from the State and the railroad company at low figures and on easy terms. With its uniformly excellent soil, cheap lands, fine, mild climate, and large and easily controlled water supply, few valleys in the arid region offer to-day so fine an opportunity for a large colony.

Quin River Valley

Lies to the northwest of Paradise, and contains about 400,000 acres of rich level land. Its climate and soil are the same as in Paradise valley, and its water supply is about the same, but owing to the fact that facilities for storage of flood waters are not so good, probably not over 250,000 acres of these lands can ever be cultivated. At present some 50,000 acres are under irrigation, almost entirely for the production of hay and pasture, only a very small area being devoted to general farming. However, the valley is well adapted to all of those products which are raised successfully in Paradise and the lower portion of the Humboldt valley. In the northwest part of the county are

A Number of Smaller Valleys,

Containing in the aggregate a large area of land suited for agriculture, with a water supply probably sufficient for 60,000 acres. These valleys are at a higher elevation than those previously described, and are now used entirely for stock purposes, affording pasturage for thousands of cattle, horses and sheep. However, with the advent of better transportation facilities, all of the land tnat can be irrigated in them will be converted into farms, for which it is well adapted, the climate being about the same as in the higher valleys of Colorado, and of Elko county in this State. South of the Humboldt river are

Grass, Pleasant and Buena Vista Valleys,

Each of which embraces a large area of fine land, but the water supply in this region is small, and probably not more than 20,000 acres can ever be cultivated here. The soil and climate of these valleys are particularly favorable for fruits, and there are here several fine orchards of apple, pears, peach, plum and apricot trees which bear abundantly, and the fruits are of the finest quality.

WASHOE COUNTY.

Washoe county lies immediately west of Humboldt, and comprises a narrow strip of territory extending from the Oregon line on the north, southerly along the west boundary of the State 200 miles to Lake Tahoe. Its area is approximately 6,498 square miles, or 4,158,720 acres, by far the greater part of which is covered with mountains, ranging in elevation from 5,000 to 11,000 feet above sea level. The southern portion of the county, along the Truckee river, is the most thickly settled part of Nevada. Here, in the midst of the Truckee meadows, and surrounded by thrifty farms, is the populous town of Reno, the county seat, with its upwards of 5,000 population. Unlike most of the counties of the State, the leading industry of Washoe is agriculture, and not mining, though recently a number of excellent gold prospects have been discovered and are being developed, while in the past both gold and silver were mined quite extensively in different parts of the county. Besides the precious metals, there are in many localities rich veins of copper and iron, while to the north of Pyramid lake are large deposits of sulphur, borax, salt and soda, and in other parts of the county are great quantities of gypsum. In the southern part is found an excellent quality of limestone, and near Reno, and in Washoe valley, quarries of good building stone have recently been opened.

Manufacturing.

Manufacturing has made a fair beginning at Reno and along the Truckee river, where water power is available. Already there are box factories, saw mills, flouring mills, planing mills, works for cutting and polishing marble, and other manufactories on a smaller scale, on the Truckee river in the county, besides a soap factory, iron foundry, wagon shops, breweries and bottling works in the town of Reno.

Along the Truckee river, which flows for seventy miles right beside the overland railroad, falling in that distance almost 2,000 feet, are grand opportunities for the establishment of manufactories, which will in the near future be taken advantage of. The volume of the stream is sufficient, if controlled and regulated, as it can easily be through the lakes at its sources, to furnish, perpetually, fully 300,000 horse-power—enough to run all the factories west of the Mississippi river. As the country is populated, and this power comes into demand, it will prove a source of immense wealth to the State of Nevada.

Dairying

Is carried on to a considerable extent in the Truckee meadows and Washoe valley. At Reno is a large creamery, the first one established in the State, which annually turns out a great quantity of butter and cheese of excellent quality, which always sell for the highest market prices, while in Washoe valley is a cheese factory with an annual capacity of about sixty tons.

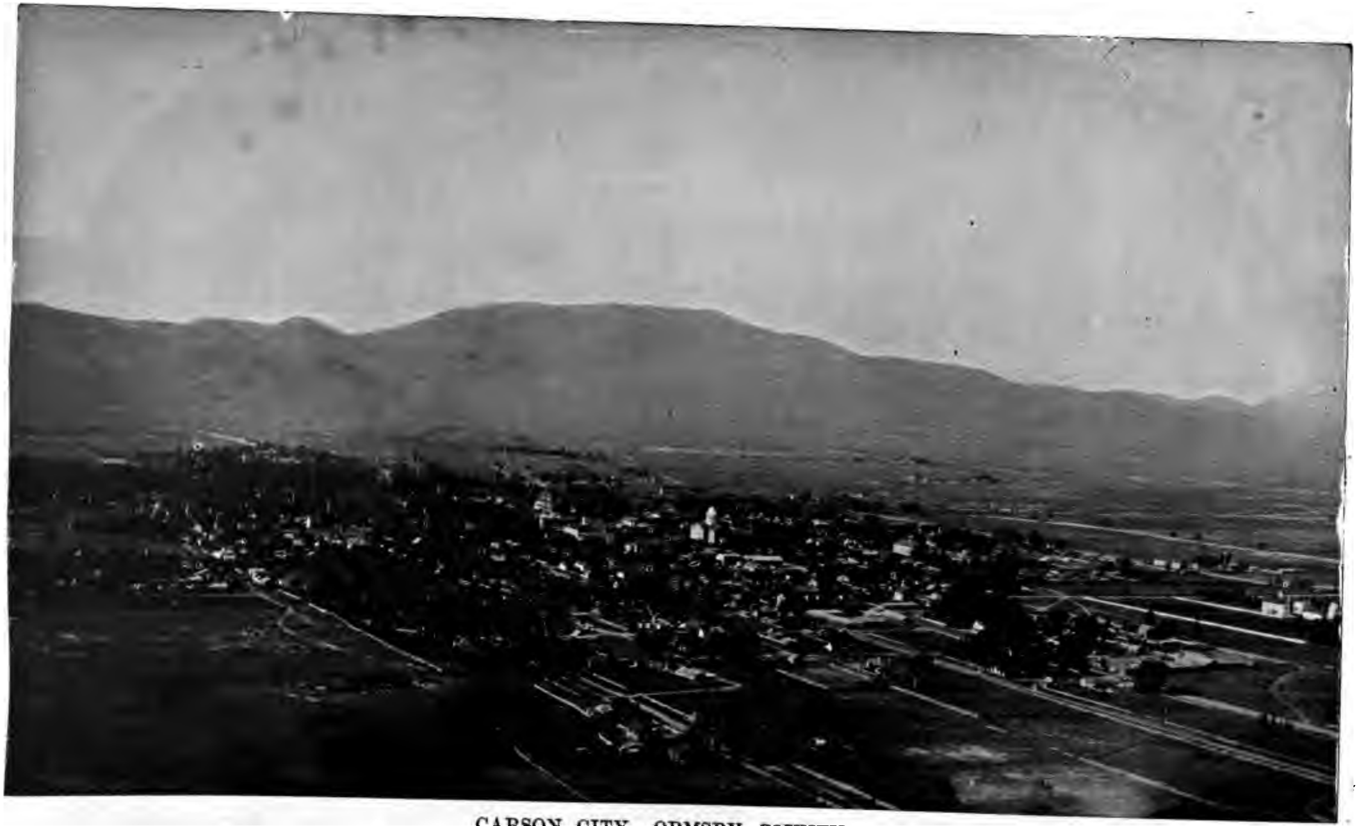
Stock Raising.

As in the other counties of the State, this is an important industry, and the northern portion of the county is almost entirely devoted to it. In the summer time thousands of horses, cattle and sheep find pasturage in the valleys and on the hills of this district, and at this time of the year beef and mutton grow fat on the range. Late in the fall beef cattle and sheep are driven to the farming districts, where they are fed on alfalfa and grass hay—mainly the former—of which great quantities are raised, for the winter and early spring market. Thousands of head of cattle and sheep are fed in the valleys of the Truckee and its tributaries each winter.

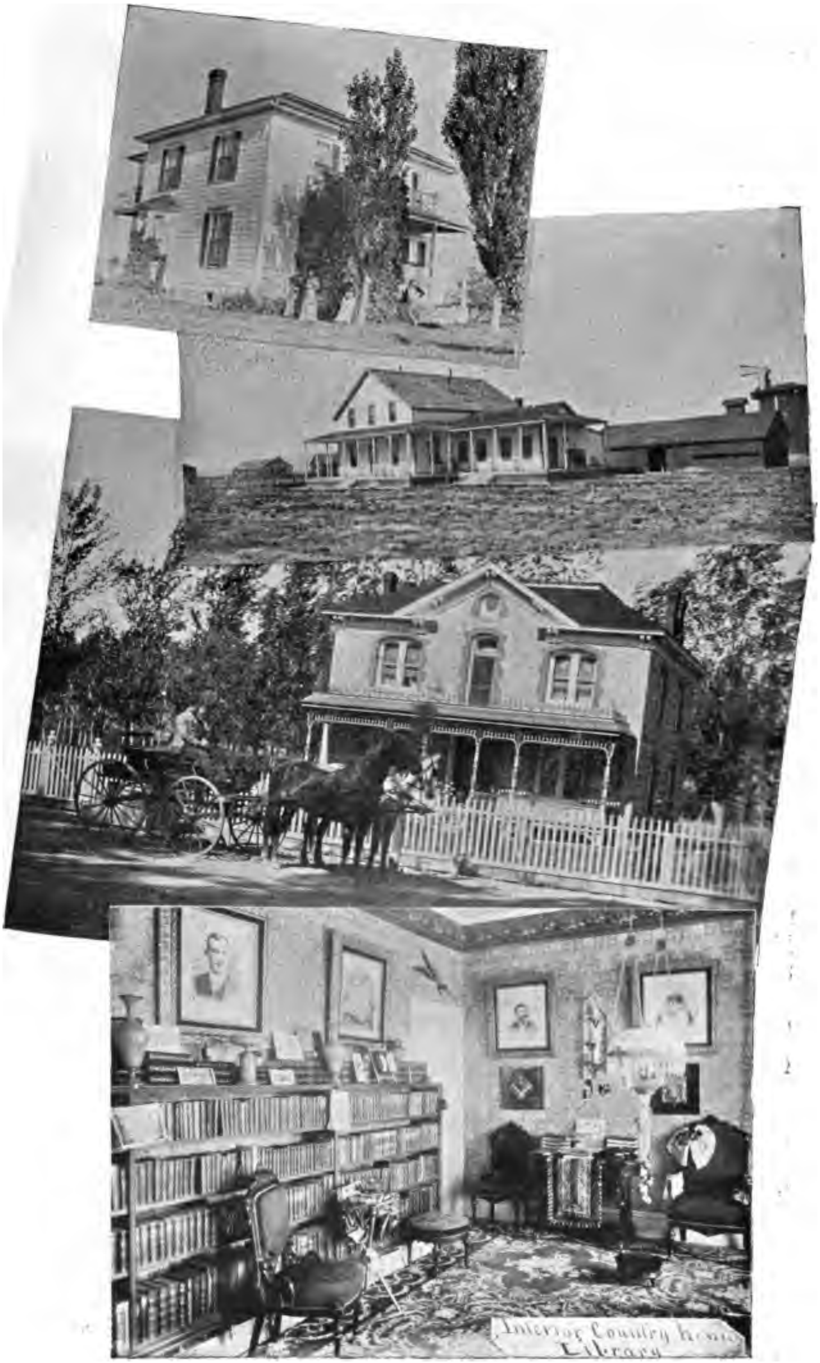
Agriculture.

As already stated, agriculture forms the main support of the population of Washoe county. In the southern portion, in the Truckee river basin, there are under cultivation some 40,000 acres of land, mostly alfalfa and other forage plants, while in all the rest of the county, probably not over 7,000 acres of land are irrigated for the production of crops of any kind. Of the 270,000 acres of land that can be reached by the waters of the Truckee river, 240,000, including all now irrigated, except about 700 acres, are in Washoe county. Besides this, in the northern portion of the county is a large extent of good land with a water supply, if fully developed by storage, and used according to approved methods, sufficient to irrigate fully 180,000 acres.

Hitherto, the absence of transportation facilities has retarded the development of this district, and prevented its use for other than grazing purposes, but this promises to be changed at an early date. A railroad has been surveyed through here from a connection with the "Oregon Short Line" of the Union Pacific system to the upper Sacramento valley in California, and the prospects for its being constructed in the near future are now excellent. When this is done the fertile valleys of northern Washoe county will be very valuable for farming purposes. The water supply and the agricultural possibilities of the southern part of the county have already been fully described in the article on the "Truckee Basin," but since general farming and horticulture, especially the latter, have made greater



CARSON CITY, ORMSBY COUNTY.



NEVADA COUNTRY HOMES.

progress here than in most parts of the State, a brief description of the results obtained will serve to illustrate Nevada's capabilities, and to that end, the following extracts from a paper read by Mr. Ross Lewers of Washoe valley, before the American Horticultural Society, are quoted:

"Fruit raising in Nevada is yet in its infancy, and what little is planted has been done mostly near the Sierra Nevada mountains in a chain of valleys extending north and south along their base. Nearly all kinds of hardy tree fruits are successfully grown in this part of Nevada, including peaches, and even apricots are here reasonably sure of fruiting. Most of the hardy berries are cultivated with success, amongst them strawberries, and raspberries are deserving of special mention on account of their fruitfulness, and praticularly on account of their superior quality, having a beautiful appearance, a rich fruity flavor and remarkable solidity, all of which make them very desirable for table fruit, for preserving and for shipment. All the tree fruits grown here are of excellent quality, being distinguished by their beauty of color and form, their flavor and good keeping qualities. The Bartlett pear here is a prolific and sure bearer of large, fine fruit; but amongst these good fruits, the apple, the king of all fruits, asserts its royal prerogative and stands up pre-eminent above them all, allowing us to form some idea of the reason why our first parents were willing to forfeit their title to the Garden of Eden."

Nevada apples took first premiums over the world at the New Orleans Exposition in 1885 and 1886, and at the Columbian Exposition in 1893.

That the fruits mentioned are a reasonably sure crop in this portion of the State is shown by the fact, which Mr. Lewers states, that in twenty-five years he has had twenty-one full crops and only four *partial* failures. Throughout a large portion of northern Nevada the conditions of soil and climate are identical with those in the chain of valleys referred to in the above paper, and wherever fruits have been tried they have been equally successful. In the neighborhood of Reno gardening—that is, the raising of vegetables—is carried on quite extensively and is very profitable. All the vegetables raised, which include cabbage, turnips, carrots, parsnips, beets, celery, in fact, the entire catalogue of garden vegetables, are of superior quality and command the highest prices.

Another industry, which is yet in its infancy in Nevada, but which is beginning to attract attention in this and some of the other counties in the State, is bee culture. It may be a matter of surprise to many, but it is none the less true, that honey from Washoe county received the highest award at the Columbian Exposition, and that several carloads are annually shipped from the State to Eastern markets.

ORMSBY COUNTY.

Ormsby county is situated directly south of Washoe, on the western boundary of the State. In extent it is the smallest of the fourteen counties, though it ranks third in population. Its total area is 180 square miles, or 115,200 acres, of which only about 20,000 acres is agricultural land, the balance being rugged mountains, valuable mainly for grazing purposes and timber. In the past lumbering was an important industry, and a large portion of the timber used in the great Comstock mines, as well as of the fuel needed, and also the lumber for the building of Virginia City and Carson, came from the forests of the Sierras in this county. But the major part of these magnificent forests of pine and fir have been cut down, and it will be many years before the young growth which has sprung up in their places will be ready for the lumberman. There are no mines in operation here at present, though a great deal of the ore from the Comstock is worked at the mills on the banks of the Carson river in the county. Eagle valley comprises nearly all the land that is suitable for farming, and in it are situated about the only farms, embracing an aggregate area of about 2,100 acres under cultivation.

The soil of this valley is very rich, and the streams entering it afford a water supply, if properly conserved and used, amply sufficient to irrigate it all. Artesian water is also found, and there are now in the neighborhood of forty small flowing wells in the valley, which are used mainly for domestic purposes and for watering lawns and gardens. In this valley, at the base of the lofty Sierras, a most picturesque location, nestles the State's capital, Carson City, the garden city of Nevada, with its population of 4,000 souls. Besides being the seat of the State government, there are located here the State Prison and State Orphans' Home, also the United States Mint, United States Land Office, United States Circuit Court and the Government School for Indians. The city is also the headquarters of the Virginia and Truckee and the Carson and Colorado railroads, and the shops of the former road are located here. But the homes of Carson are the most beautiful and attractive feature. Many of the cattle kings and wealthy mine owners of the State have their residences here, and in the spring and summer it is a veritable garden.

DOUGLAS COUNTY.

Douglas county lies directly south of Ormsby, in the broad angle of the western boundary of the State. Its area is 806 square miles, or 515,840 acres, by far the greater part of which is high, rugged mountains. The major part of the county is in the upper division of the Carson basin, but the southern end extends into the drainage basin of the Walker river, and includes that portion of Antelope valley lying in Nevada. A considerable area in the western portion of the county is occupied by the Sierra Nevada mountains and a part of Lake Tahoe, which, aside from their grand scenery, afford from the mountain forests a great quantity of wood and lumber. In the eastern part, and separated from the Sierras by Carson valley, is the Pine Nut range of mountains. This is a characteristic Nevada mountain range, covered near the base with sagebrush, and at the higher altitudes with cedar, nut pine and mahogany, while it is seamed with ledges of quartz, some of which are rich in the precious metals. Gold placer mines have also been discovered in these mountains, and are being profitably worked, though the scarcity of water has prevented operations on an extensive scale in this line. In the southern part of the county are gold quartz mines, which have been worked for a number of years, and have paid handsomely. Mining, however, is not a leading industry in Douglas county. The majority of the residents are engaged in stock raising, dairying and farming. In Antelope and Carson valleys are some of the finest stock ranches of the State, and besides, hundreds of horses, cattle and sheep range on the lower hills and mountains that border these valleys, and which, being mainly Government land, constitute a common pasture ground.

Dairying is carried on most largely in Carson valley, where are located three creameries, which are now turning out about 35,000 pounds of butter per month, and have a capacity of about double this. Nearly all the farmers and ranchers in the valley milk a few cows, and take the milk to these creameries, the product from which is of superior quality, and commands a ready sale at the highest prices in California and other markets.

Agriculture.

The total area of agricultural land in the county is about 100,000 acres, 70,000 of which are in the Carson valley, the balance being in the Walker river basin, in the vicinity of Lake Tahoe, and at other scattering points amongst the mountains. In Carson valley there are over 30,000 acres of land under irrigation, of which some 6,000 are in alfalfa, 8,000 in general farm crops and 16,000 in native grasses for the production of hay and pasture. Here, as elsewhere in the State, water is used very extravagantly, and this, in connection with the fact that a considerable volume must be allowed to pass down the Carson river to furnish power for the quartz mills below in Ormsby and Lyon counties, so diminishes the supply available in the latter part of the irrigating season, that storage of flood waters will be necessary before the whole of the valley can be put under irrigation. However, an excellent site for such storage exists in Long valley, between the east and west forks of the river, as already mentioned in the article on the Carson river, where sufficient water can be held for all the requirements of the valley, and thus homes be furnished for a large number of people in a district where settlement is already well advanced.

The majority of the farmers in the valley are a thrifty class of Germans and Swedes, constituting a very prosperous community. Outside of this valley about all the lands in the county that are now under irrigation are devoted to the production of forage crops, of which the native grasses are the principal. Except in the higher mountains, however, where the climate is more severe, these lands are as well suited to general farm products as those of Carson valley, where, besides alfalfa and grains, all kinds of garden vegetables, potatoes, and nearly all the hardier fruits, thrive and produce abundantly, and where experiments with hops and the sugar beet have demonstrated that they will not only yield heavily but of the very best quality.

STOREY COUNTY.

Storey county comprises an area of 288 square miles, and is situated on the mountain range to the southeast of Washoe county, which separates the basin of the Truckee river from the middle and lower divisions of the Carson river basin. It is essentially a mining county, the great Comstock mines being located here, and has produced the greater part of the gold and silver that have been taken out of the State; in fact the output of the Comstock mines has been greater than that of any other group of mines in the world, being more than half a billion of dollars.

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This is the only place in the State where deep mining has been carried on to any extent, and here the indomitable miner has delved over 3,000 feet into the bowels of the earth in search of the precious metals. At present these great mines are almost idle, but they are by no means worked out. Hitherto but very little ore that would yield less than $20 per ton has been worked, but there is an almost unlimited quantity that will mill from $6 to $15 per ton, which, with improved processes and more favorable conditions for working cheaply, will yet produce as much more bullion as has ever been extracted from the grand old lode.

As stated above, Storey county is situated on a mountain range, and there is very little level land that is suitable for agriculture within its borders. Along the south bank of the Truckee river, which forms the north boundary of the county, is a narrow strip of rich soil within reach of water, and here about 700 acres have been put under cultivation. Aside from this there are a few small tracts of level land scattered amongst the mountains, but water for their irrigation is almost entirely wanting. Thus only a few acres have ever been utilized, and little more can be. Probably not over 3,000 acres can ever be irrigated in the entire county.

LYON COUNTY.

Lyon county is situated directly to the eastward from Douglas, Ormsby and Storey counties, and comprises an area of 1,525 square miles, or 976,000 acres, part of which lies in each of the Truckee, Carson and Walker river basins, only a small portion, however, being in the first named. These different basins are separated by irregular ranges of mountains, in some of which rich mineral ledges have been discovered. The principal mining district of the county is situated in the northwestern part, adjoining Storey county. Here, in the neighborhood of Silver City, mining has been carried on for many years, and a large quantity of gold and silver has been produced. At present, the most promising mines of the district run high in gold and carry very little silver. Along the

IN HUMBOLDT COUNTY.

RENO, WASHOE COUNTY.

Carson river, in the vicinity of Dayton, the county seat, where abundant water-power is available, are a number of mills which work ores and tailings from the Comstock mines. Three miles to the northeast of Dayton is the mouth of the famous Sutro tunnel, which runs into the mountains a distance of five miles and taps the Comstock mines at a depth of over 1,600 feet. This tunnel was driven to drain the mines of water. In the central and southern part of the county a number of prospects of gold and silver quartz have been found, which are quite promising, while in the eastern part are several copper mines of considerable value, from which a large quantity of copper has already been taken. Marble of excellent quality has also been discovered at several places in the county, but owing to the fact that it is away from the railroads, the expense of transportation prohibits quarrying it at present.

Stock Raising and Dairying

Are important industries in Lyon county. The mountain ranges furnish summer feed for thousands of cattle, horses and sheep, which are driven into the valleys along the Carson and Walker rivers to winter. There are four creameries in the county—one in Smith's valley, two in Mason valley and one on the Carson river below Dayton—which produce a large amount of butter and cheese, the greater part of which is shipped to the California markets, where they command top prices. The creamery on the Carson river is engaged in the manufacture of various kinds of French cream cheese, which is shipped to all important cities west of the Mississippi. This is the only factory of this kind in the west.

Agriculture.

Already agriculture is a leading industry in Lyon county, some 35,000 acres being under cultivation in the various valleys of the Walker and Carson rivers, and it is in this direction that her greatest possibilities lie. In the central division of the Carson basin, in the vicinity of Dayton, and below old Fort Churchill, are not less than 50,000 acres of good land, within easy reach of the waters of that river. Much of these lands are located along the line of the Carson and Colorado railroad, which connects through the Virginia and Truckee with the Central Pacific railroad at Reno, and all of them are conveniently located with reference to it. At present, not over 5,500 acres are under irrigation in this district, and the major part of this consists of alfalfa and wild hay lands.

This body of land is capable of supporting and rendering perfectly independent over 1,000 families, and there are few more favorable localities for a large colony. The greater portion of the agricultural lands of the county, though, are in Smith's and Mason valleys, on the Walker river. These valleys have already been described as to their location, area and water supply. Ranching and general farming are now carried on largely in them, but not over ten per cent. of the good land is under irrigation, and the greater part of that is for the production of forage crops. The fertility of the soil in these valleys is remarkable. Nowhere in the world are farming operations rewarded by larger returns. All the general farm crops and many varieties of fruits are raised in these valleys, and the yields, while always large, are frequently almost phenomenal. In 1891 Mr. Angus McLeod, of Mason valley, had seventy acres in barley, which yielded seventy-five bushels to the acre.

Charles Snyder, of the same place, says: "I have had an experience of twenty-eight years farming in this valley. The greatest yield of products per acre in any one season are as follows: Nine tons of alfalfa, twenty-five tons of potatoes, and sixty bushels of wheat. I have a young orchard consisting of apricots, quinces, prunes, pears, apples, plums and grapes, all of which bear well. In my garden I have blackberries, strawberries, gooseberries, raspberries, currants and all kinds of vegetables in abundance." These are not isolated cases, as such reports are at hand from many of the farmers of Mason and Smith's valleys, and they serve to illustrate the richness of the soil and the general adaptability of this region to all the crops mentioned. Hops, also, are raised on a small scale, and do as well here as in any part of the Pacific Coast.

As already stated, the greater part of these lands—nearly 200,000 acres—is now lying idle, though abundance of water is afforded by Walker river to irrigate all. The Carson and Colorado railroad crosses the north end of Mason valley, furnishing transportation to that district, and good roads connect it with Smith's valley. While there are other valleys in Nevada that equal these in fertility, there are none either here or elsewhere that surpass them, and it is only from the fact no effort has ever been made to attract settlers that they are not already the seat of a large population. In the northern part of Lyon county, in the Truckee river basin, and situated on the Central Pacific railroad, just east of the town of Wadsworth, are 30,000 acres of land which can be irrigated from the Truckee river at comparatively small expense, and thus rendered productive. Canals to cover this tract were surveyed in 1889 and 1890, but have not been constructed.

CHURCHILL COUNTY.

Churchill county is situated in the west central part of the State, and comprises an area of 5,158 square miles, or 3,301,120 acres. The major portion of the western half of the county, embracing the valley known as the "Carson Sink," is level land, and has about the lowest elevation of any large area in the northern part of the State. In the eastern part are several high ranges of mountains, having a northerly and southerly trend, and separating the valleys of this portion, which constitute distinct basins, having no connection with the main drainage systems of Nevada. These mountain ranges have the same general characteristics as all the others in northern Nevada, being seamed with ledges bearing the precious and other metals. In many parts of the county rich veins of gold and silver have been discovered. Most of these discoveries are of comparatively recent date and are yet but slightly developed, but some of the mines have been worked for many years and have turned out a large amount of bullion. Some of the late gold discoveries are phenominally rich, and give promise of very soon becoming genuine bonanzas to their owners. In the northeast part of the county are extensive copper mines, upon which work has been commenced within the past two years by a company of New York capitalists. Furnaces have been erected in this district, which is known as White Cloud, and they are now turning out and shipping matte. All the copper ores of this district carry a percentage of both silver and gold.

In this region also are rich mines of antimony and cobalt, preparations for working which on a large scale are now being made. Besides the metals above mentioned, there are extensive deposits of salt, borax and soda in different parts of the county. For a number of years soda and salt have been leading articles of produce and export.

Stock Raising

Is largely carried on throughout the county, and in the valleys and on the mountain ranges are thousands of head of horses, cattle and sheep. The large valley about the Carson sink is a favorite wintering ground for stock, owing to its mild climate, due to the low elevation—from about 3,850 to 4,000 feet above the sea level—and the almost total absence of snow. Notwithstanding the county's great mineral wealth, and its possibilities as a grazing district, it is in her

Agricultural Resources

That she is richest. In the sink region, embracing the lower division of the Carson river basin, are not less than 280,000 acres of fine level land, susceptible of irrigation at a moderate cost, from either the Carson or the Truckee river. A considerable area in this valley is already under irrigation, but as in other parts of the State, comparatively little is devoted to general farm crops, the major part being employed for the production of wild hay and pasture. The soil of the valley is generally a dark loam of great depth and richness, and is well adapted to all the products raised in Lyon and Humboldt counties, which join Churchill on either side. The major portion of the land in this valley still belongs to the Government, though in the northern part the alternate sections are the property of the Central Pacific railroad company.

At present there is no railroad into the valley, but the nearest point on the Central Pacific does not exceed thirty miles from its center, and as the ground is almost level all the way, the building of a branch into it will be a very simple matter when it is settled up. In the eastern part of the county are Edwards creek, Salt Marsh and Osob valleys, each of which contains a large area of good land, but the water supply afforded by the streams is deficient. However, this deficiency may in the future be largely made up by the development of artesian waters, for which the prospects are good. In the first named valley are two wells, having a depth of about ninety-five feet, which furnish sufficient water to thoroughly irrigate fifty acres of land, and the indications for artesian supplies in all of these valleys appear equally as good as at this place. At present this portion of the county, aside from mining, is chiefly a stock country, but by a close utilization of all the surface waters, through storage and well planned systems of ditches. many thousands of acres in each of the above named could be rendered valuable for farming purposes.

ESMERALDA COUNTY.

Esmeralda county is situated in the southwestern part of the State, and has an area of 7,056 square miles, or a little over 4,500,000 acres. The northwestern portion of the county falls within the Walker river basin, but the greater part of it is comprised of isolated basins, having comparatively scanty water supplies, and rugged mountains, generally of less altitude than those in the north and northeast part of the State. These mountain ranges, however, afford excellent grazing for stock, abundance of nut pine, juniper and mountain mahogany timber for fuel, and besides are rich in nearly all the minerals known and made use of in the arts and sciences.

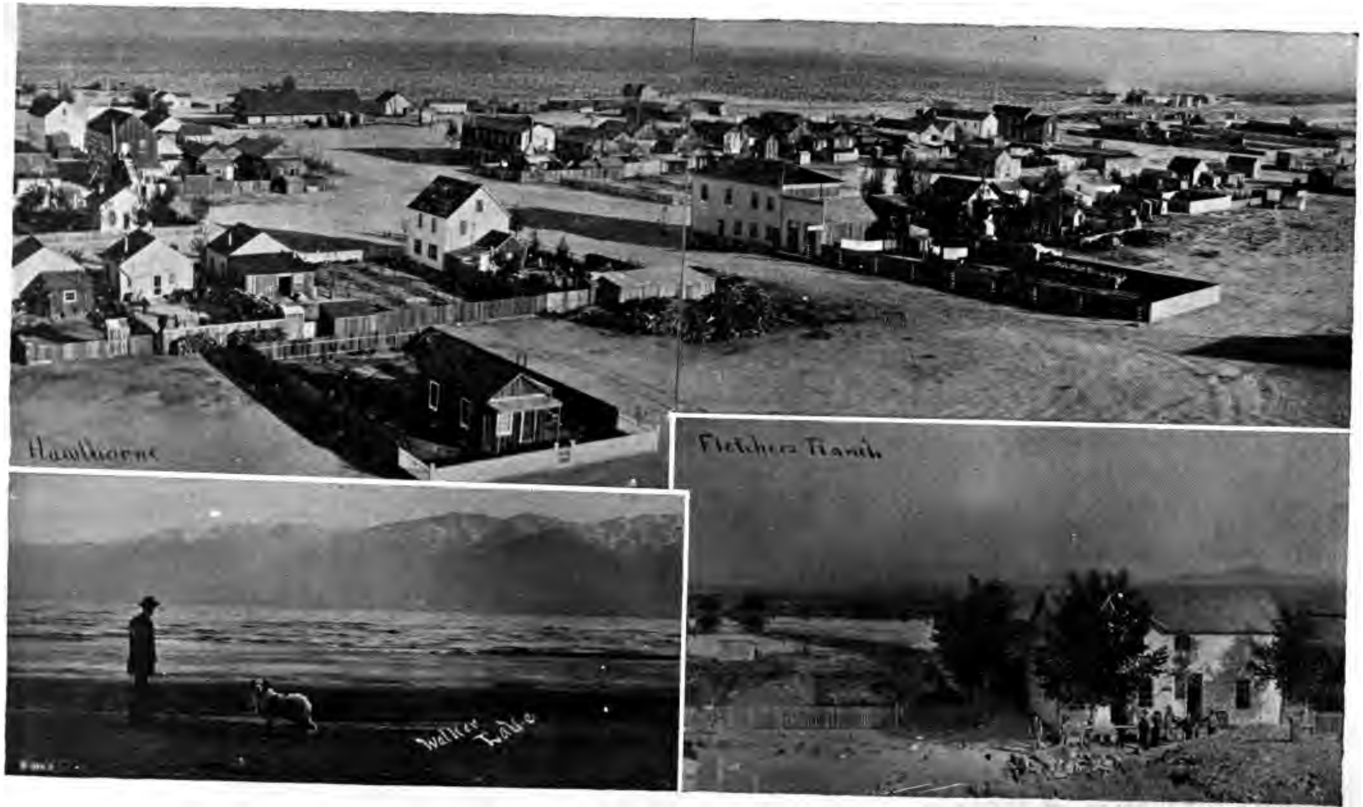
Mining

Has been a leading industry since the first settlement of the county. Formerly silver was the principal product of the mines, but since it began to decline in value gold mining has received a decided impetus, and many rich ledges are now being opened up, some of which are employing many men and producing considerable bullion. The principal gold mining districts of the county are Pine Grove, Cambridge, Aurora, Hawthorne, Gold Mountain, Palmetto, Silver Peak, Silver Star and Tule Canyon. In many of these districts work has been going on for a number of years, and the combined output is probably considerably beyond $20,000,000 already. With the exception of Tule Canyon district, where placer mines are found, the mines are all quartz, and some of these are probably the largest veins of the kind ever found on the Pacific Coast.

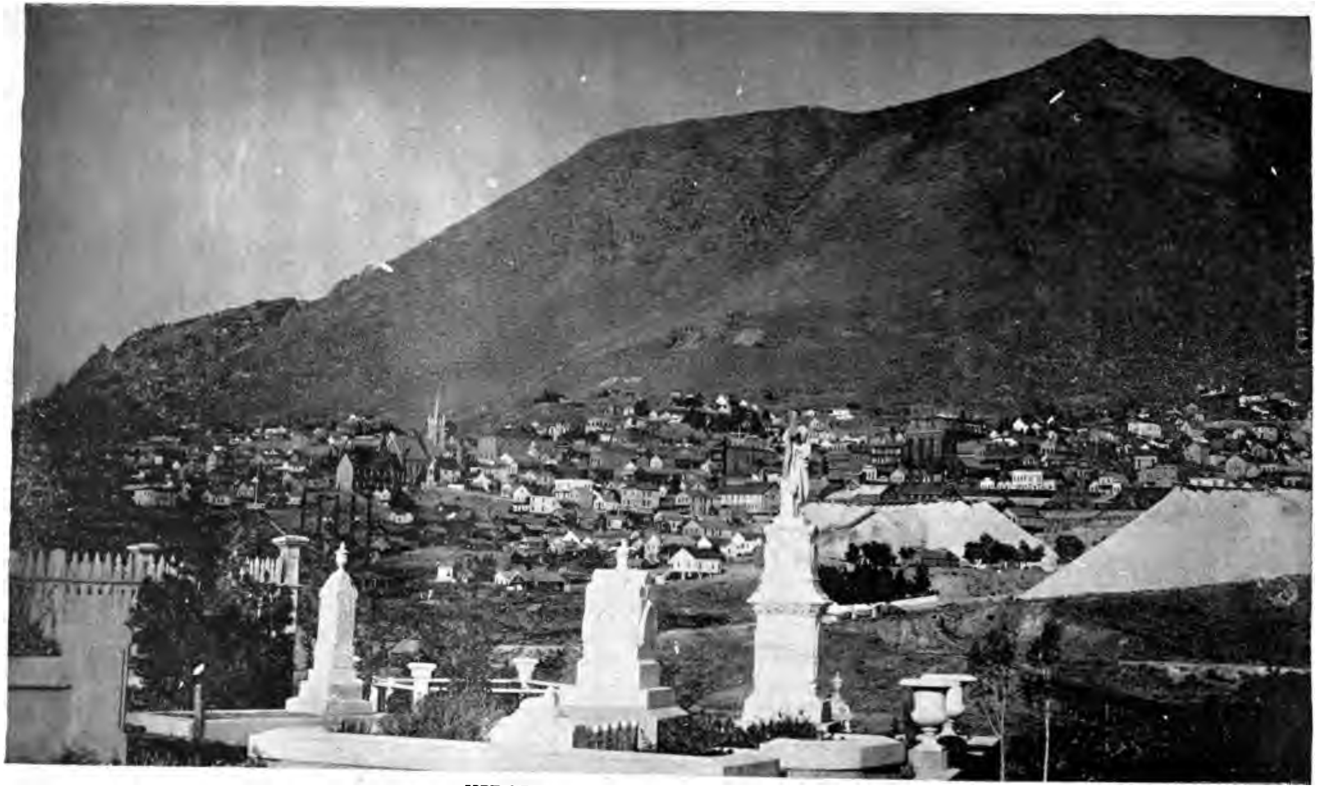
In Silver Peak district are ledges of solid quartz, in many places at least 100 feet in width, the entire mass of which will average about twelve dollars per ton. Many of these rich mines are the property of non-residents who do not work them, and as patented mining claims are not assessed in Nevada there is no expense incurred to hold them, and let them remain idle until the owners see fit to operate them, or to sell to some one who will. Of late many prospectors have been flocking into the county to the various gold districts, and it may be expected that other rich discoveries will be made, as a great part of the mountain ranges has never been thoroughly explored. At present very little is being done in the way of silver mining, owing to the low price of that metal, although formerly over 500 men were regularly employed at Candelaria and other camps. About the only silver mining being done is for high grade silver and lead ores, which is being carried on at three or four places in the county, and furnishes employment for about fifty men. Copper mining is carried on on a small scale in the county, though there are many rich veins of this metal, the ores being used for the manufacture of bluestone, which is largely used in the milling of ores from the Comstock mines.

Other Minerals.

Besides mining for the precious and other metals, another important industry in Esmeralda county is the gathering and refining



IN ESMERALDA COUNTY.



VIRGINIA CITY, STOREY COUNTY.

of borax and soda, large deposits of which exist at many places. Borax occurs in various forms. In some instances it is an incrustation of borate of soda, in others as a natural crystal of borate of soda, called a tincal. Sometimes it is a borate of lime or cotton ball, which lays in the ground like a potato. Another form of the borate of lime is known as sheet cotton. At present there are four plants for the manufacture of borax at work in the county, employing about 150 people and producing a large amount of borax. Soda in various forms is being manufactured from natural deposits, the principal of which are what are known as Double Springs and Hot Springs marshes. The Occidental Alkali Company is operating at the former marsh, where they have a large plant and a deposit of soda covering 800 acres. The soda exists as a dry incrustation, from four to eighteen inches in depth. The forms of soda produced are bi-carbonate, sesqui-carbonate, crystal-carbonate and soda-ash. As the market is very extensive and the demand constantly increasing, it is considered that this will be a very important industry. The capacity of the Occidental company's works is about 1,500 tons per annum. Soda produced by this company took the highest award at the Columbian Exposition.

In addition to borax and soda, there exists large bodies of gypsum near Hawthorne, the county seat, and extensive deposits of sulphur near Luning, on the Carson and Colorado railroad, and in the southern end of the county. There has also been discovered near Luning a very fine natural bronze powder, which promises to be of considerable commercial value, and near Queen station, on the C. & C. R. R. is a large deposit of pure silica. This material took the highest award at the Columbian Exposition. Coal is found at two places, in the western and southern parts of the county. That from the western part of the county very much resembles the coal from Washington and British Columbia, while that from the southern part is inferior and contains some slate. Both deposits are quite extensive, but owing to absence of transportation facilities, no use of consequence has yet been made of them. Large bodies of good quality iron ore, running from sixty to seventy per cent. in iron, also exists in the county. Salt is found in many places, and is largely produced, being used for table and dairy purposes and in the milling of silver ores.

Agriculture and Grazing.

The greater portion of the county is suitable and utilized for grazing, the natural grasses being different forms of bunch grass, and others common to the northern part of the State, besides the alfilaree and clover of California. Large areas are also covered with white sage, which affords excellent winter feed. The winter storms are not severe enough here to hurt stock, and as a rule they winter well on the ranges.

As already stated, except the northwestern part of the county, which is in the Walker river basin, and containing some 80,000 acres of excellent land which can be irrigated from that stream, Esmeralda county is embraced in a number of isolated basins. In nearly all of these is a considerable area of excellent land, but in no case is the water supply sufficient for all that could be reached by it. The streams resemble very much those which issue from the Sierra Madre mountains and the mountains of San Diego county, in southern California, and only by storage of their flood waters, and by bringing out the underflow at or near the mouths of the canyons, can very extensive areas be irrigated. In the southern part of the county are Fish Lake, Clayton and Columbus valleys, each embracing a large area of excellent land, and the first named having a very good water supply. At present probably not more than 5,000 acres of land are irrigated in these three valleys, and, as elsewhere in the State, this is largely devoted to forage crops. Remoteness from railroads, and consequent expense of transportation is the greatest drawback here, but in time, as the region gradually fills up, this will be remedied.

The water supply available from the streams and springs is ample, if stored and economically used, to supply fully 50,000 acres, and while no artesian wells have been bored, the formation of the country and the general indications in all of these valleys are very favorable for it. So there is little doubt that from this source, through pumping from wells and bringing out the underflow of streams, the irrigable area will ultimately be increased to 75,000 acres. In the vicinity of Hawthorne, and scattered through other parts of the county away from the Walker river and its tributaries, probably about 75,000 acres more can be rendered productive by the existing available waters, but generally this irrigation will be more expensive than in the counties already described. However, the milder climate in many parts of the county renders possible the raising of a class of products which will generally warrant a greater outlay for water.

Besides all the products of the counties before described, there are grown successfully here the almond, the walnut, the raisin, grapes, peanuts, sweet potatoes and other crops which will not endure the severe frosts which occur further north.

WHITE PINE COUNTY.

White Pine county is situated at the extreme eastern side of the State, about midway between the northern and southern boundaries. It has an area of 8,885 square miles, or nearly 5,700,000 acres, and comprises a number of valleys separated by mountain ranges, extending from north to south, some of which are from 11,000 to 12,000 feet in height, while the highest peaks reach an altitude of almost 13,000 feet. These high mountains receive a very heavy precipitation of snow, which, melting, yields a large volume of water that flows down into the valleys, moistening the ground and producing excellent range for stock, besides furnishing a supply for irrigation, but a portion of which is yet utilized. Hitherto the absence of transportation facilities—there are no railroads entering the county—has retarded development in this portion of the State. As a consequence, mining and stock raising, with only sufficient farming to supply local demands, have occupied the entire attention of the people, and it is chiefly as a mining county that White Pine has been known in the past.

Silver mines, some of them the richest that have ever been discovered in the State, first attracted people to the county, but latterly many rich gold discoveries have been made, and some of these are now being extensively worked, while new ones are constantly being found. In the southeastern part of the county, at Osceola, are extensive placer mines, which are worked by hydraulic process, and annually yield a large amount of gold. About the only silver mining now being done is at Treasure Hill for high grade ores, which are shipped by way of Eureka to Salt Lake City for reduction.

Stock Raising

Is an important industry in White Pine county, and some of the best ranges of the State are located here. In the valleys and on the lower mountain ranges and foothills all the grasses that grow in the northern part of the State are abundant, while in almost every part of the county the white sage and browse, which afford excellent winter feed, are to be found. Besides the stock owned in the county, thousands of head of sheep are annually driven from Elko county and further north to winter in the valleys of White Pine, where the snowfall is always very light and the feed good.

Agriculture.

As before stated, owing to the lack of railroads in the county and the consequent cost of transportation to markets, agriculture is not carried on beyond the supplying of the local mining camps with required farm produce, except in the way of raising hay and other forage for stock. However, with its numerous large and rich valleys, and comparatively large water supply, White Pine is destined at no distant day, when railroads have penetrated this portion of the State, to become a fine farming district. The principal agricultural valleys are Snake, Spring, Antelope, Steptoe, Sierra or White River, Butte, Newark and Gilson's valleys. They comprise in the aggregate about 1,600,000 acres of rich alluvial land, not more than two per cent. of which is now under irrigation, though the surface waters which can be made available is amply sufficient to properly serve fully 400,000 acres, and the indications are favorable for a large artesian supply.

Though most of these valleys are at an elevation of between 5,000 and 6,000 feet above sea level, many of them are on the southern slope of the great basin plateau, and opening to the south, receive the warm currents of air that blow across the Colorado desert and up the Colorado river. Thus they have a milder climate than many parts of the inter-mountain region having a much lower altitude. So many varieties of fruits, such as peaches and apricots, besides the more hardy ones, do well here, and are sure of bearing. The soil generally is the same as is found in the other valleys of the State, and wherever cultivated yields enormous crops. A glance at the map of the State will show the nearest railroad connection with the county. From Eureka, at the southern terminus of the Eureka and Palisade railroad, and from Wells and other points on the Central Pacific, good wagon roads run to all parts of the county. The San Francisco and Salt Lake Air-Line railroad survey runs almost through its center, and being the shortest and cheapest route for a road from Salt Lake City to San Francisco, this line will undoubtedly be built at no distant date, and when it is White Pine, with its great mineral and agricultural resources, may be expected to have a genuine boom.

LINCOLN COUNTY.

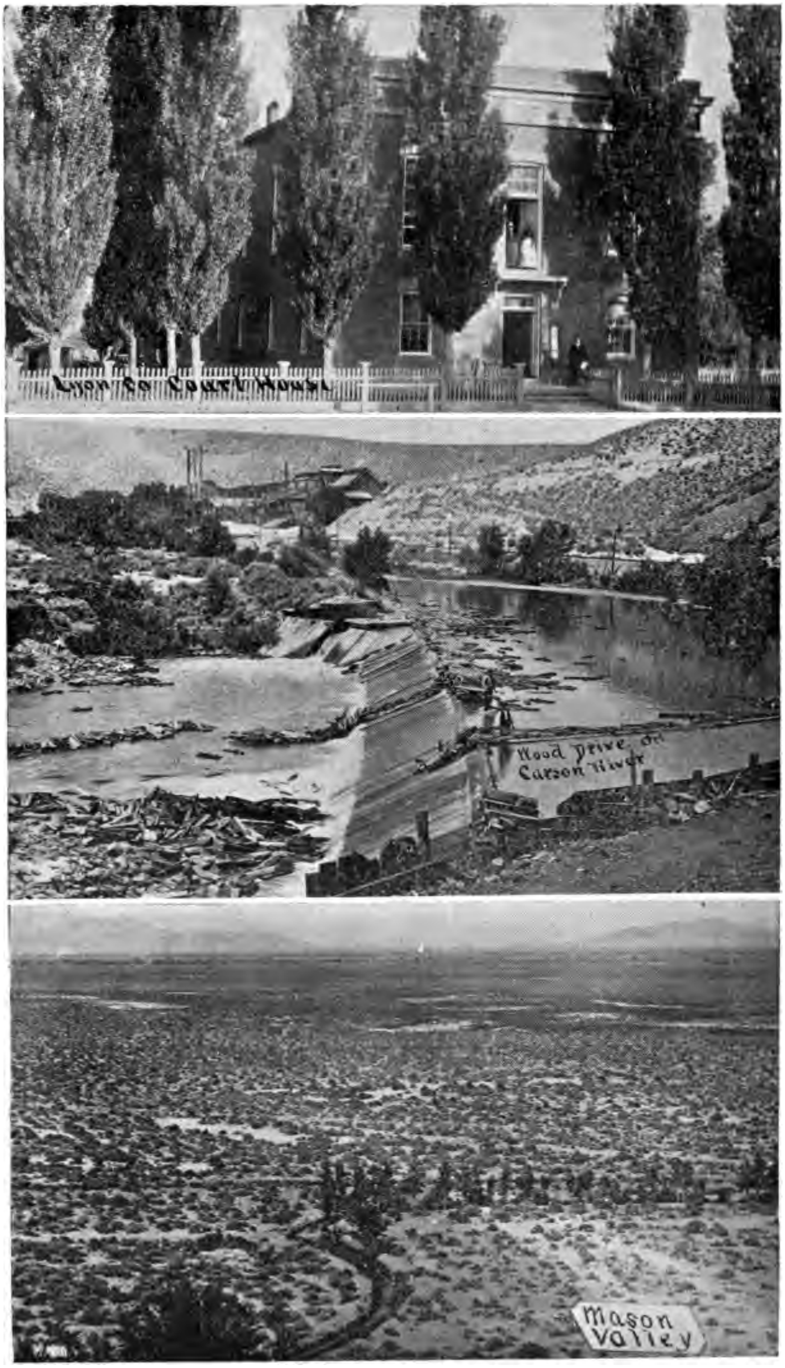
Lincoln county is situated in the southeastern part of the State, adjoining the Utah and Arizona boundary line. It has an area of over 19.000 square miles, or nearly 12,250,000 acres, and shows the same features of broad valleys and intervening north and south mountain ranges as are found in White Pine and other counties. These mountain ranges, however, have generally a lower elevation than those further north, and the valleys and hills do not afford as good range for stock, but in the existence of mines and minerals through the county the analogy is carried out. The value of its product of gold, silver, lead and copper since the date of its organization in 1866 is about $30,000,000. This amount is insignificant compared with the hundreds of millions that remain in the large and frequent veins of gold and silver ores, in the immense masses of copper, and in the mountains of iron, lead and salt already known, and all the work heretofore done, as compared with a thorough development, or even a thorough prospecting, is as a mere scratch upon the surface. A statement that mountain masses of mineral lie practically untouched may seem strange, until the reader is told that the cost of transportation necessary to bring ores to market is far greater than the whole value of the ores from which the bulk of the gold and silver of the world has been extracted.

The lowest cost of shipment from the point nearest to the Salt Lake reduction works has been fifteen dollars per ton, while from other points in the county it has ranged from twenty to one hundred dollars per ton, and these prices still prevail. Prospecting heretofore has been only for the four metals named, but others, unsought, have discovered themselves. It has been estimated by a practical and conservative miner and metallurgist that in the Raymond and Ely mine alone, with cheap transportation, the value of the zinc only—a metal which to-day prevents the profitable working of the mine—would be more than five millions of dollars net. In another part of the county an owner of salt hills has for many years broken down the salt and sold it for one dollar a ton, while during the same time $100,000 has been sent out for the same kind of salt, in the same condition, for milling purposes, at the rate of from twenty to forty dollars per ton.

Agricultural Products.

The soil also yields other than mineral wealth. From the northern boundary of the county, near the 39th degree of latitude, where the average altitude is almost 6,000 feet, to the southern, which touches the 35th parallel, there is a grand gradual slope downward to near the sea level. On this grand declivity the hardiest cereals and vegetables and such semi-tropical products as cotton, the citrus fruits, figs, etc., flourish in perfect growth. Tobacco is indigenous. There

IN DOUGLAS COUNTY.



IN LYON COUNTY.

are hundreds of square miles where the plant grows so abundantly as to make its harvesting a source of provision for the aborigines. The potato proper and the sweet potato, or yam, each grows within the county in perfection, the former superior to that produced in New England, the latter equal to its kind in the Sandwich Islands.

Throughout the northern part of the county the climate is that of the temperate region of the western part of the United States, being adapted to such products as are grown successfully in southern Esmeraldy county—already described—but in the southern part, and extending westward across the south end of Nye county, there is a belt of country not only very fertile, but favored with a semi-tropical climate, and at the same time having an available water supply sufficient to bring out the best results which the hand of civilized man can achieve with such a combination. A few isolated efforts spread over this district have afforded ample evidence of its perfect adaptability to produce abundantly the grains and grasses of the farther north, and to yield fruits of the highest excellence, but no long continued associated effort has been made to control the waters of the streams and use them to even a tenth of their capacity. No capital has been invested able to cope successfully with the difficulties attending the settlement of an inland region. In all this region, along the banks of the great Colorado of the west, along the valleys of the Rio Virgin and its tributaries, and about the many springs and smaller streams, can be produced, first, the finest grapes for raisins, wine and table use, equal to any that ever grew upon the hills of Spain and Portugal, or the plains of Hungary; pomegranites, figs of every variety and of highest excellence; chestnuts; almonds, of every grade; peaches, nectarines, oranges, lemons, and many other fruits, and the yield will be as large and as sure as in the most favored parts of southern California and Arizona.

The lands suited to these semi-tropic products, for which there is an ample water supply, comprise about 200,000 acres within the basin of the Rio Virgin, on the main stream and its tributaries, fully 90,000 acres along the Colorado river, and in Pahranagat, Vegas and other valleys about 100,000 acres more. In the northern part of the county are many rich valleys, having a colder climate, but well adapted to the production of all the cereals, vegetables and fruits of the temperate zone proper, in which are water supplies in the shape of small streams and springs, some of the latter yielding a great volume, sufficient, when fully utilized, for the irrigation of probably 70,000 acres of land.

This entire region is naturally desert and arid, reminding one very much of what southern California was some fifteen or twenty years ago, and it will so remain until human energy and enterprise has brought together the thirsty land and the fertilizing waters, but whenever and wherever this is accomplished there is no failure in results. The expense will vary in different localities, but the average cost per acre for putting water upon the land will be very much less than it has been in any other of the semi-tropic portions of America. So, with the prospect ahead that the general Government will ere long improve the channel of the Colorado river to facilitate navigation on that stream, and with a railroad already building eastward toward this region, with a probability of its soon forming a link in a transcontinental line, Lincoln county, and the southern portion of the State generally, offer strong inducements for settlers and capitalists, and there can be no doubt but that ere long it will be the scene of active development on a great scale.

NYE COUNTY.

Nye county is situated directly west of Lincoln, and extends northerly from the California boundary. Its area is 20,000 square miles, or 12,800,000 acres. In topography and general features it is identical with Lincoln and Esmeralda counties, and like Lincoln and White Pine it has no railroads, though the Nevada Southern, now building from a connection with the Atlantic and Pacific railroad in California, is completed almost to the southern point of the county. Hitherto mining has been the principal industry here, and many rich mines of both silver and gold have been discovered and worked, yielding an enormous amount of bullion, but the cause that has operated to retard development in other parts of the State, viz: lack of transportation facilities and consequent great expense of shipping out ores, etc., and of shipping in necessary supplies, has prevented any but the richest of the mines from being worked. With the advent of railroads this condition of things will change, and mines which cannot now be worked at a profit, though they contain ore carrying from $30 to $60 to the ton in gold and silver, will be developed and yield enormous profits.

Gold and silver, however, are not the only metals found here, though thus far no others have been mined. Copper, lead, antimony, zinc and quicksilver have been found in quantity, and besides these gypsum, fire clay, chalk, soapstone, borax, soda, salt and alum exist in many parts of the county in great abundance. Several of the mountain ranges contain forests of pine and fir timber suitable for manufacture into lumber, and nearly all of them have abundance of nut pine, juniper and mahogany, which furnish excellent fuel and fencing material.

Agriculture and Grazing.

The northern portion of the county, adjoining Lander, Eureka and White Pine is an excellent grazing country, being well covered with grasses and browse that thrive throughout those portions of the State, but further south, in the warmer districts, vegetation is generally more scanty and the range for stock is not so good. However, stock raising throughout the county is an important industry, and is carried on to a greater or less extent by all the farmers; in fact, their main dependence for a livelihood is upon their bands of cattle and sheep, as the only markets for farm produce is that afforded by the mining camps which are scattered through the county, and this is too limited at present to support any large agricultural population.

Probably not over 25,000 acres of land are now irrigated for the production of crops of all kinds, and by far the greater part of this is devoted to forage crops. However, the agricultural possibilities of the county are very considerable, and the water supply, while scattered, consisting of innumerable small streams and springs, some of the latter affording a great deal of water, is in the aggregate very great, though it is not sufficient to irrigate but a small portion, comparatively, of the vast area of good land in the county which would, with water, be valuable for farming purposes. The principal valleys are Sierra or White river, Duckwater, Railroad, Little Smokey, Fish, Springs, Reveille, Monitor, Big Smokey, Ralston and Pahrimp, besides which there are many smaller valleys. The aggregate area of good level land embraced in these is probably not less than 4,500,000 acres, but it is not likely that over one-sixth of this can ever be irrigated with the water supply at hand. In the northern part of the county the climate and productions are the same as those of the counties adjoining, while further south, with the warmer climate, many of the semi-tropical fruits and other products can be raised successfully.

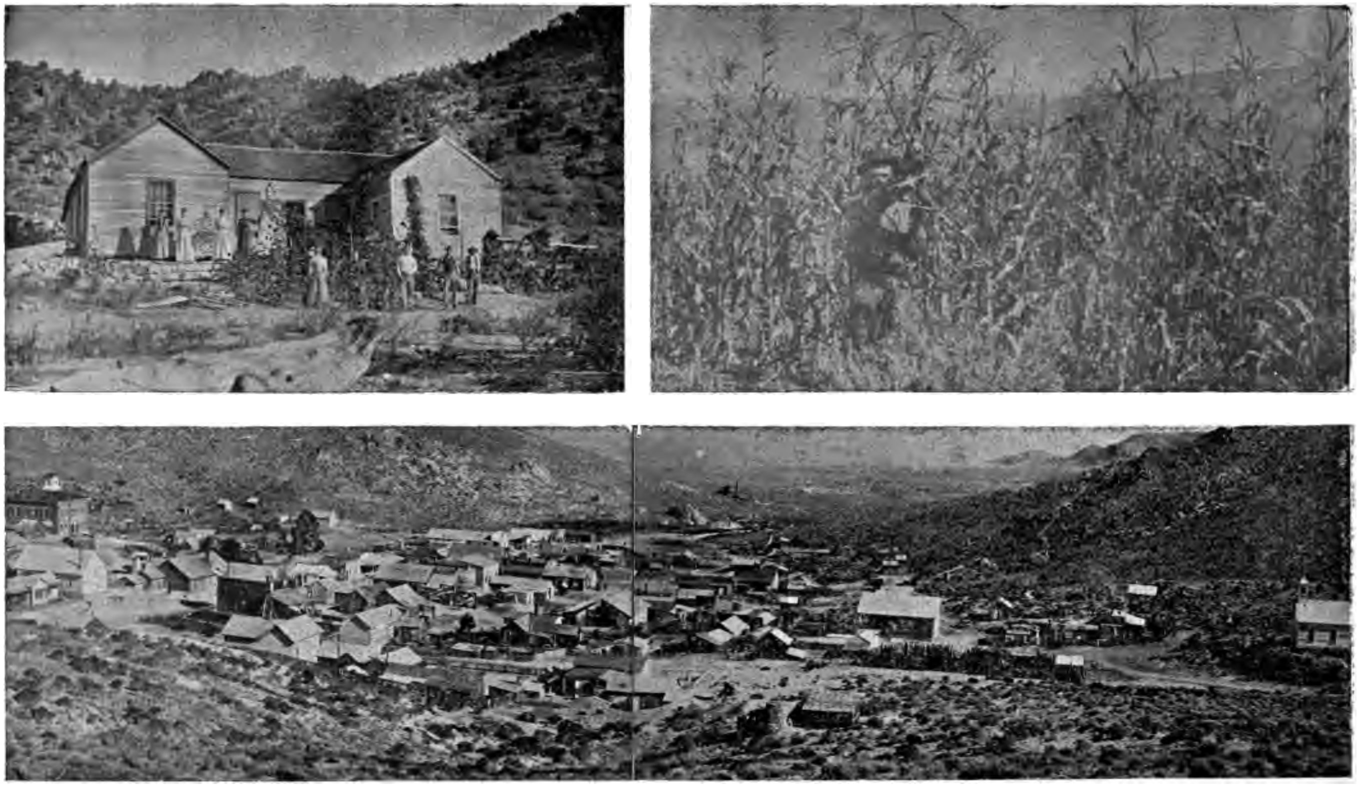
SUMMARY OF RESOURCES.

Mining and Agriculture.

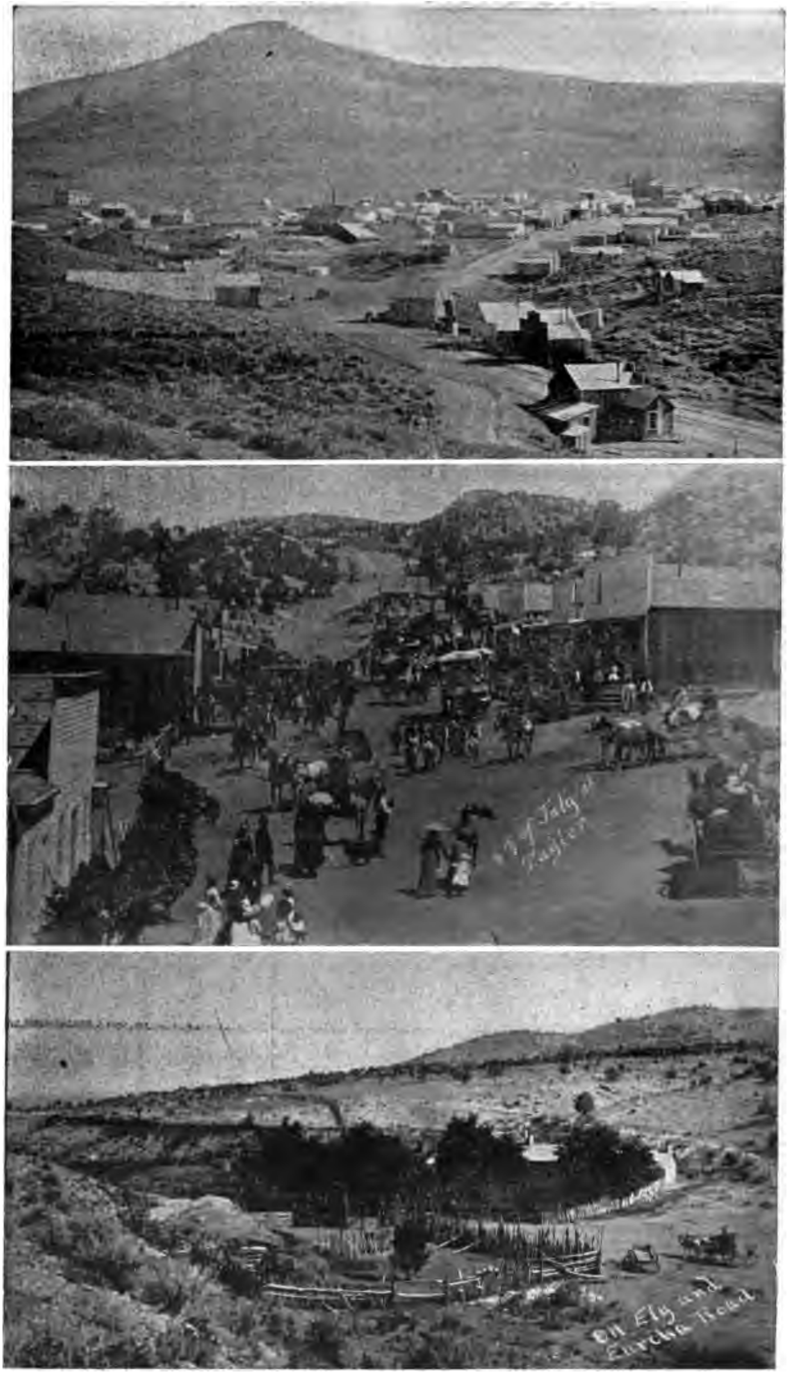
TO THE inquiry of the farmer, and to those who look to the land for their living, "What can we do with our products in a State of such limited transportation as Nevada?" we answer: the mineral wealth of the State, under a proper state of development, will afford a rich and highly remunerative market for all the products of the State. This great advantage of having a home market cannot be overestimated. It is a cash market and a high price market, and in the past has made richer men of those who profited by this advantage than mining itself. The little mining camp of Bodie, that enjoyed but a brief period of prosperity, afforded a market for the products of Mason valley, and in a few years built up wealthy agricultural sections distant over a hundred miles away. The influence of the Comstock in a brief period of time changed western Nevada from a cattle range into prosperous agricultural sections. Tuscarora has done the same for Elko, and the same can be said for Austin, Eureka, White Pine and Pioche. Hitherto agriculture has followed in the wake of mines and mineral developments in the State. But now a change is coming. Silver mining has waned and the agricultural communities that have been built up by it remain, while the mines and mining has in a great measure been abandoned.

This condition cannot last. The youth of Nevada will find work for idle hands. When unoccupied on the farm he will employ himself at the mine, and if he make but two dollars a day, it will be a winter well spent, and he will mill his ore in the spring and grind his corn in the fall. Then there will be a welding of the agricultural and mining resources of the State upon a basis so firm and solid that the true era of the State's prosperity and advancement and its integrity as a State and a people will be dated by it. It will be the glad farewell of the political rotten borough and that unwholesome period of wild speculation and assessment that has left to the memory of the millionaires created by it only inverted shafts and holes in the ground for monuments.

Pending the arrival of legislation that will restore silver as money of ultimate redemption and its acception as such by the civilized world, let us look for a moment at the gold resources of the State: It is among the richest in the Union to-day. Nevada is not a purely silver State. Employment can be found for more men mining for gold than silver mining has afforded in the past, and a greater output of wealth can be returned from it every year. The Comstock produces gold in the proportion of forty-five dollars in gold to fifty-five dollars in silver. The ores of the base range at Eureka carry twenty-five per cent. gold. Lincoln county is a gold producer. Esmeralda county, with the exception of Candelaria, is producing nothing but gold. There is a gold bearing ledge at



IN NYE COUNTY.



IN WHITE PINE COUNTY.

Silver Peak, Esmeralda county, traceable for miles, that is forty-five feet wide. The ore runs from five to seven dollars a ton, being well diffused through the mass, with here and there rich pockets. To date mining has been done in that ledge only in the rich pockets. Its proper development would afford profitable and steady employment to a thousand men for a generation, as it is practically inexhaustible.

Pine Grove, another gold bearing district of Esmeralda county, with its proud record of over two millions already produced, is also a practically inexhaustible district. The ledge, which is but partially developed, is traceable for miles, and is over 200 feet wide. The ore occurs in chutes, deposits and bonanzas of greater or less extent. It very much resembles the Comstock ledge in this particular. It can be opened and prospected by tunnels to a depth of about 900 feet, and a vast mineral section opened to the miner. Wood and water is abundant and near by. It is as valuable and extensive a property as the Silver Peak property, and would employ as many men profitably.

Hawthorne district, also in Esmeralda, is another gold belt traversed and crossed by many seams of rich rock. A deep shaft would there doubtless strike a concentration of ore of immense value. The country is perfectly dry, and great depth could be attained without water interfering.

The mines of Esmeralda county would afford a market for all the products that can be raised in western Nevada. Douglas county, which now finds a limited market in Bodie and the Comstock, would be immeasurably enriched by the development of the gold mines of Esmeralda county.

The Devil's Gate and Chinatown Mining District, situated partly in Storey and partly in Lyon counties, is also a gold bearing district. It has produced much wealth in the past, and its surface only has been scratched. It is not developed. The ledge is strong and has been opened on the surface by well-known gold producers at many different points from Spring valley to Devil's Gate, a distance of about two miles. A tunnel following the course of the ledge from Spring valley to Devil's Gate would strike the Silver City mines at a depth of about 500 feet, and would open an immense mineral section, through almost the entire length of which luring inducements would be offered the miner to prospect, and it would afford employment to at least a thousand men. It is in every respect equal to the Pine Grove and Silver Peak properties.

The Comstock, with its unparalleled record of six hundred million dollars in round numbers, of which nearly one-half was gold, is not a played out mining camp. It will not be many years before rock worth five dollars a ton can be extracted and worked at a profit—it would pay the farmer's sons now—and there are millions upon millions of tons of that class of ore, and many millions of tons worth at least eight and ten dollars a ton, already opened, through which bodies explorations have already been made in the search for pay spots. Cedar Hill, at the north end, is simply a mountain of gold bearing rock. It is limitless, practically. Whose boys would not go and extract a few hundred tons of ore and mill it in the spring? This is what would furnish money and a market for the farm. The Combination shaft was sunk to a depth of 3,100 feet. At that depth the ledge and quartz in the ledge was as likely and promising as at the very croppings of the ledge itself. Invention and machinery will get there, and the old lode will be prospected to a depth of 5,000 feet before mining is abandoned on the Comstock.

Carson valley, Antelope valley, Smith's valley, Eagle valley and Washoe county, would be afforded a rich market by such a development. Churchill county would also reap a rich reward by the development of all the properties mentioned, as each place would be easily accessible,

Men who have followed agricultural pursuits in Douglas county during their spare time have devoted a little work already to the development of gold placer mines in Pine Nut mining district, in Douglas county. Pay dirt has been found in many parts of a large field, the wash of mineral ledges in the high Sierras, which ledges have not as yet been traced. But they certainly exist, and will sooner or later be located by the indomitable miner. Wood and water is very plentiful and easily to be obtained for sluicing, and it cannot be long before the placers of Douglas county yield a steady stream of wealth to the world. The hard pan is deep, and will require the expenditure of labor to get down to the pay spots.

Traveling east in Humboldt, Elko and Lincoln counties, and also White Pine, gold mines of large promise have been found and in some instances partially developed. In Elko county there is a gold belt traceable for a hundred miles, and it is many miles wide. The country was cracked and fissured by that great convulsion which the earth experienced at the time of the formation of the lava beds to the north, and the Elko mineral belt extends south from the lava beds. This immense territory, in which gold ledges have been found in many parts, will be prospected by the farmer and his sons. They cannot all work on the farm, and there is the winter which can always be profitably spent. The farm will afford the "grub stake" and buy powder and fuse, and the mine will afford the silk dress, and the piano, and travel, and all the advantages of education and refinement, and ever hold out that hope which is the spur to man's action.

The east is crowding out its surplus population. Everything is overdone. Land is high and getting scarce. The inventive genius which has characterized this century above all others that have preceded it is making idle hands by thousands. The contention for subsistence is getting fierce. Nevada, with its superior advantages and its superb climatic conditions, cannot long remain unpopulated.

The Osceola placer mines of White Pine county are well known. They are limitless in area, and no person living to-day will ever read of their being worked out. Their output will greatly increase in the future, as improvements are progressing for their development. By consulting the maps which accompanies this work, the reader can get better information of the agricultural sections to be benefitted by the opening and development of the gold mines of the State.

To the farmer seeking a home, we bid him a most hospitable and cordial welcome, and we earnestly invite his most careful consideration and investigation of the advantages presented and offered him in this work. The land assures him a good living and the mines offer him a bright promise of money. We want the general farmer, who raises everything the soil will produce. We want men who will come with their household gods and plant them here and say here I will live and here I will die, and we promise him a happy and healthy existence.

Social, Educational and Religious.

It is not to an uninhabited wilderness that we invite him. Already, in nearly all of our valleys, especially along the lines of or near railroads, settlements have sprung up and there are many towns and villages that offer all the advantages in the way of schools, churches, libraries and of social intercourse generally, to be found in older settled States. The people of Nevada are especially proud of the public school system, which is amongst the most richly endowed and most efficient in the Union.

In 1880 Congress granted to the State 2,000,000 acres of land, in lieu of the 16th and 36th sections, and the proceeds of the sale of this land are turned into the school fund. At present, there are in this fund in cash and invested in United States and State bonds, about $1,300,000, and there is a large sum outstanding on the sale of lands which is bearing interest at the rate of six per cent. per annum, while there yet remains unsold about 400,000 acres of land. Besides the public schools, of which there are 258, the State maintains, at Reno, a university, which, while a young institution, is a first-class college, furnishing facilities for an advanced education. In connection with the university is a normal school which is doing excellent work in the training and education of teachers, and many of its graduates now hold positions in the common schools. In several of the towns of the State high schools have been organized, and are doing good work in the educational line. There are a number of private schools in the State, and prominent among which is Whitaker Hall, a seminary for young ladies, at Reno.

The State also has an Orphans' Home at Carson City, where not only the material wants of unfortunate children are provided for, but where a school for their education is conducted, and they are taught in all the branches of the common schools.

Climate.

Without wearying the reader with lengthy tables of temperatures, humidity and precipitation, it is difficult to give any adequate conception of the magnificent climate of Nevada. In few places, if anywhere in America, is it equalled. The purity and dryness of the atmosphere are its chief characteristics. It is the unanimous opinion of physicians who have practiced in the State for a number of years that there is nowhere to be found a climate more conducive to health and longevity. A case of consumption has never been known to develop here, unless the person was engaged in some occupation that furnished both the cause and aggravation. In this land of almost perpetual sunshine and exceptionally pure air the dreaded *bacillus tuberculoses* finds absolutely no encouragement in his deadly work.

While it is not claimed that our climate will always cure asthma and other kindred affections, we come daily in contact with persons who cannot live elsewhere on account of these diseases, and yet in this pure, bracing air they are enabled to pass the time in ease and comfort, for if not cured they are greatly relieved.

In general, it may be said of this climate that it offers advantages unsurpassed to those who seek a restoration to health, no matter what their disorders may be, and especially is this so for those seeking immunity from consumption and kindred ailments.

Regarding the weather in Nevada, there is a very erroneous impression prevailing that the winters are severely cold and stormy. On the contrary, they are quite mild, and the number of bright, sunny days is as great here, though this is our season of snow and rain, as in any part of the United States. There are few places in the State where, even during the coldest periods the mercury ever reaches zero in the daytime, and rarely throughout the whole of northern Nevada is there a day when it does not go above the freezing point. Excepting in the extreme southern part of the State, the summers are never hot, and there, owing to the extremely dry atmosphere, the heat is not oppressive. Nowhere in the world is there a greater number of clear days in the year. Rarely indeed does it occur that the sun is not seen for twenty-four hours, and in different parts of the State there are from 200 to 300 days in the twelve months that there is not a cloud in sight.

Health and Pleasure Resorts.

In many parts of the State are mineral springs which are much frequented by those suffering from organic and other diseases, and that the bathing in and drinking of these waters is beneficial in such cases is not an illusion, can be vouched for by the many persons who have visited them and been positively cured or greatly improved. The diseases which yield most readily to these waters are rheumatism in its various forms, liver, kidney and skin diseases, malaria and nervous prostration.

There are thousands of these springs scattered throughout the State, but the most frequented and best known of them are Steamboat Springs and Laughton's in Washoe county, Shaw's in Ormsby county, Walley's in Douglas county, Golconda hot springs in Humboldt county, Bruffey's springs in Eureka county, and White Sulphur springs in Elko county.

But it is not for the invalid alone that Nevada has attractions. In many parts of the State is to be found grand mountain scenery, beautiful lakes, sparkling streams, and everything that goes to make the ideal summer resort. Many of these places are as yet remote from railroads and difficult of access, but already many tourists annually visit Lake Tahoe, the grandest mountain lake on the American continent, and many other places in the Sierra Nevada mountains along the western border. Every stream and lake in Nevada also is full of fish, and nowhere will the angler encounter finer sport.

Wealth of the State.

A recent bulletin issued by the Census Bureau at Washington, gives the total value of all real and personal property in the State at $180,000,000, or about $4,000 for every inhabitant. This is a greater per capita wealth than is possessed by any other State or Territory, and about four times the average for the whole United States.

While this is greatly in excess of the amount returned by the Assessors, it is a well known fact that the property in this State is never assessed even to one-third of its real value, and besides mining claims, whether patented or not, are not assessed at all. So it will be seen that the estimate of the Census Bureau cannot be far wrong.

State Land Laws.

As before stated, the State of Nevada is entitled to select from the unoccupied public domain some 400,000 acres of land, this being the balance unsold of the 2,000,000-acre grant from the Government of the United States. The State laws under which these lands are disposed of are the most liberal. The price at which they are sold is $1 25 per acre, of which twenty-five cents is payable at time of making application and the balance in twenty-five years, with interest at six per cent. per annum. One applicant can purchase 640 acres.

Opportunities for Investment.

Having given a general description of the State and the various counties, and having recounted the many resources and advantages, slight reference will now be made, in concluding this work, to some of the opportunities that exist for the investment of capital. Capitalists seeking investments in irrigation enterprises, or good locations for the planting of colonies, have sought them in each of the other States and Territories of Western America, until the best opportunities existing there have been taken.

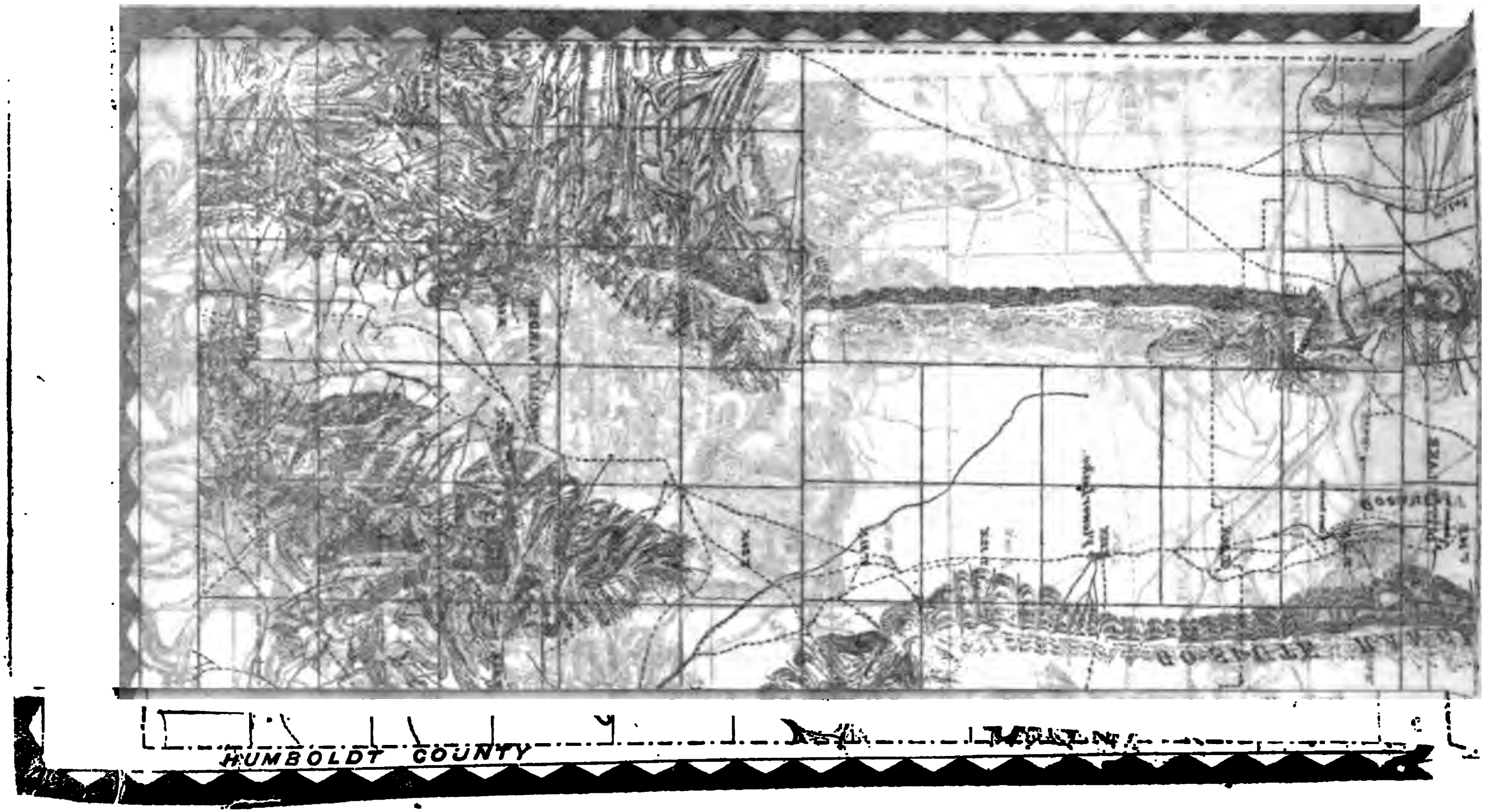
Nevada, however, has been under a cloud. Hitherto, no one has dreamed that there was anything of value in Nevada aside from the ledges of gold and silver. Almost up to the present day the opinion has prevailed, as it did in California in the early days, that our soil was utterly barren and unproductive. The result is that to-day our great valleys are almost tenantless, and the waters of our many streams flow down into the lakes and sinks to be drunk up by the sun's rays, instead of being employed to fertilize the thousands of acres of richest soil now lying idle, and belonging mainly to the Government of the United States.

No part of our country to-day is so little known as Nevada. While the people of our sister States and Territories have been searching out and advertising to the investing and home-seeking world their varied and abundant resources of soil, water and climate, no concerted effort has been made to show that Nevada possesses like possibilities, and that she has within her borders a hundred such valleys as the San Louis in Colorado, or the Jordan in Utah, which even to-day are begging for occupants, while more than one of these can boast a semi-tropical climate equal to that of the Santa Ana in southern California, in which lie the famous orange groves of Riverside, Redlands and Ontario.

What finer opportunity exists in this broad land for the development of colonization enterprises than exist in this State in the various valleys of the Humboldt river and its tributaries, or on the Carson, Walker, Truckee, Quin, Owyhee or Virgin rivers? Where can be found richer soils, coupled with better and more

easily handled water supplies? There is to-day no better field in the whole United States for investment in this class of enterprise than Nevada affords.

Compiled by L. H. Taylor, assisted by R. L. Fulton, E. C. McClellan and A. Chartz, for State Bureau of Immigration.



HUMBOLDT COUNTY